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NOVEMBER, 1957 50 CENTS

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NATIONAL PARK SERVICE

AGRICULTURAL LANDS

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STATE LAND POLICY

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FEDERAL LAND PROBLEMS

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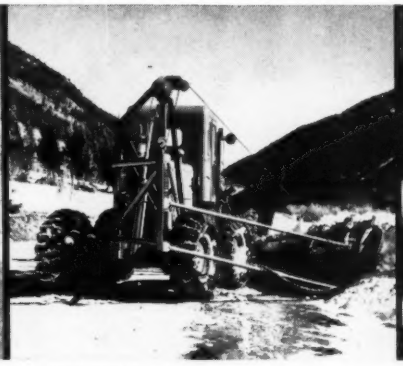

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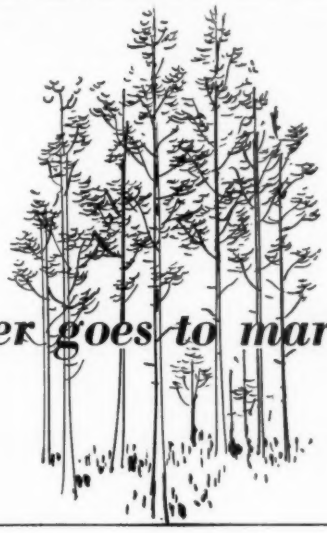
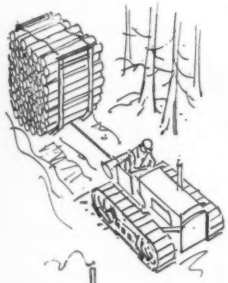
It's Forestry

when the tree farmer goes to market

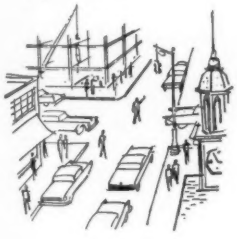


When the forest owner knows when, where and how to sell his timber—



When the timber operator develops low cost production methods and turns out high grade products by proper tree cutting methods—

When there is a pulp mill or other wood-using industry within economic reach of the tree farmer and the cutting crews—



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American FORESTS

PUBLISHED BY THE AMERICAN FORESTRY ASSOCIATION

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Volume 63, No. 11 | *November, 1957*

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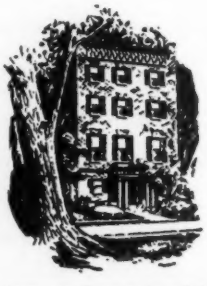
Note — *The Editors wish to thank Dean Tvedt, Wisconsin Conservation Department, who served as official photographer for the annual meeting, and whose pictures appear in this issue, for his excellent work; and to express appreciation to State Conservation Director Lester P. Voigt, State Forester John Beale, Extension Forester F. B. Trenk and residents of the Badger State who helped to make AFA's meeting a success.*



The AFA

The American Forestry Association, publishers of *American Forests*, is a national organization—independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.

AMERICAN FORESTS is published monthly by The American Forestry Association at 919 Seventeenth Street, N. W., Washington 6, D. C. Subscription price $6 a year. Editors are not responsible for loss or injury of manuscripts and photographs while in their possession or in transit. The Editors are not responsible for views expressed in signed articles. Entered as second-class matter at the Post Office at Washington, D. C., under the Act of March 3, 1879. Acceptable for mailing at special rate of postage provided in Section 1103, Act of October 3, 1917, authorized July 10, 1918. Additional entry at Baltimore, Md., December 29, 1931.

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Forest Forum

Kiamath Indians

EDITOR:

In your August issue you ask for further comments on the Klamath Indian Reservation problem.

I am surprised to see from the letters you published that several economists, lumbermen and foresters shied away from public ownership. I presume this reflects the policy of industry to resist increased government ownership or regulation, however minor the instance. I too have some fear of a growing "welfare state" but federal management of the Klamath timberlands would not be needless intrusion of public ownership.

I believe in federal purchase of the tribal timberlands at retail (present day) prices and their management by the U. S. Forest Service for the following reasons:

1. It would really be no increase in public ownership; these forests have been managed well for 40 years like public forests, though actually the property of the Indians.
2. Immediate sale in small lots to the highest bidder would result generally in a cut-out and get-out treatment, not in sustained yield. The Oregon Conservation Act might prevent actual devastation, but would not insure by any means full reforestation or continuous production.
3. Immediate sale in small lots might glut the market for logs so that the Indians would not receive full value.
4. Purchase and management by the state of Oregon would be O.K., but would involve more of a bond issue than the state could handle.
5. Purchase and management for sustained yield by a syndicate of lumbermen would also be O.K. but they could not afford to pay the retail stumpage price (that based on immediate manufacture) since ponderosa pine growth here is too slow to offset carrying charges.
6. Sale to the federal government on some long-term installment basis would give the Indians an annual steady income, probably far better for them than a quick cash disbursement or guardianship.
7. Management of the area by the U. S. Forest Service would be a good investment for Uncle Sam, provided payment at retail prices was spread over a number of years, quite aside from the community and national benefits of annual sustained management.
8. The bugaboo of loss of taxes by the county, in the event of federal acquisition, is groundless since legislation would provide that a share of the gross revenues goes to the county in lieu of taxes, as in the case of other national forest lands.
9. Purchase of the large acreage of low-production Klamath timberlands by the government need be no precedent for similar action on other reservations.
10. If the forests were sold all at once to private operators and the merchantable timber all cut in a decade or so, how would the community sustain thereafter its sawmills, its payrolls and its tax revenues?

Thornton T. Munger
2755 S.W. Buena Vista Dr.
Portland 1, Oregon

EDITOR:

Appreciating your interest in the future of the Klamath Forest, and also as I have visited the Klamath Indian Reservation, I wish to submit the following:

The Klamath situation is of vital importance, both because of the Indians involved and the Klamath forest.

The welfare of the Indians is of first importance. It is now evident to many of us that the Termination Act was passed with entirely too much haste. If it were possible to set aside the proposed termination and work out a plan by which the Indians would retain their forest, possibly incorporate ownership, and have it managed much as has been done by the Indian Bureau, it seems to me that would be best. But frankly I am afraid it is now too late to secure approval of such a plan, either by the Indians or by Congress.

The second and very important question is the Klamath Reservation. The ecology of the location should not be changed. The forest, the marsh lands and the lakes are ecologically interdependent, and their management should be continued along lines established by the Interior Department.

Because it seems to me the most promising method for getting protection for the Indians and their interests, and for the preservation of the forest and marsh lands, I support the plan for the purchase of the forest and marsh land by the federal government, as provided in *Senate 2047*, sponsored by Senators Wayne Morse and R. L. Neuberger.

For further protection of the Indians and to provide a homeland for them, I wish to urge that thoughtful consideration be given to having their agricultural lands retained in tribal ownership. This would assure them land on which their homes could be located and also subsistence farming and food production might be carried on by some of them. Some such plan seems to me to be very important.

Both the Indians and the conservation of the ponderosa pines are of great concern to me. I am a member of the Indian Rights Assn., and the board, and also a vice-president of the Penna. Forestry Assn.

Hoping you will continue to do your utmost for the protection of both the Klamath Indians and the great forest, I am,

Edward Woolman
Buck and Panmure Roads
Haverford, Pennsylvania

Suburbia

EDITOR:

No truer words were ever spoke than this month's (August) comments in What's News Across the Nation.

Marion T. Kurpisz
Seneca Street
Springbrook, New York

EDITOR:

Of all the self-satisfied, complacent, mediocre people, your suburbanite subscribers take the cake! Haven't they heard yet that Proxmire won in Wisconsin? I say your periscope is out of kilter and that most people really aren't like that. If people were really so smug and complacent as *that* we would be as corrupt as Rome and Pompei. Mr. Editor, I suggest you go out and talk to the people who really work in the woods and get away from suburbia and the company people who run your organization. You would find also that we folks in the woods are all for Senator Humphrey's forest products price reporting bill—although we know that you and the company men are against it. We need honest price reporting just as much as stock farmers and cotton farmers and grain farmers. . .

LaFayette Messer
Route 1
Covington, Virginia

"Convoy to Cameron"

EDITOR:

. . . The hurricane actually did very little damage to our holdings. We lost some 7,000 thirty-five year old trees. This was natural longleaf reproduction, and had been thinned extensively some three years ago. Normally we would thin on a five year cycle, but when this tract was thinned it was thinned on a ten year cycle, as we expect to be extremely busy for the next seven or eight years thinning our reforested areas; consequently, the trees we had left were only the best. We were able, however, to salvage, as poles and piling, all the timber that was blown down. We also were able to convert the tops into pulpwood.

. . . By the way, I was in Cameron at the time the Louisiana Forestry Commission's trucks and tractors arrived. I went down right after the hurricane in my boat and took doctors, and oil and gas for outboard motors, and stayed several days. The arrival of the forestry commission equipment was, to say the least, a surprise to everyone, as the estimate was that no equipment could arrive in Cameron in less than three days due to the condition of the roads and bridges. The Louisiana Forestry Commission can be extremely proud of their part in this emergency.

G. L. Paret
Edgewood Land & Logging Co., Ltd.
Lake Charles, Louisiana

ATLANTA WATERSHED CONGRESS

Daniel Poole, editor, *Outdoor News Bulletin*, of the Wildlife Management Institute

By DANIEL A. POOLE

NONE of the three preceding National Congresses can boast a better representation of all the interests that benefit from the proper use of land and water resources on a watershed basis than the fourth and most recent meeting held in Atlanta, Georgia, on September 23-25.

The 350 people who either were on the program or attended this meeting ranged from the city dweller to the industrialist, businessman, farmer, recreationist, and forester. Their attendance and participation was occasioned, no doubt, by the intense interest in water resources and use in the South.

It was reflected in part, also, by the breadth of the formal program itself, which, unlike those of former years, swung away from principally agricultural considerations of the national watershed program of the U. S. Soil Conservation Service to the broader implications of water use and management. This year's program included a well-rounded presentation of topics of a timely and general nature.

In northern Georgia, Atlanta added considerably to the program in that industry, farmer, recreationist, wood grower and city dweller are grouped compactly, thus providing a graphic and live demonstration of the aspects of water use that should be considered in any practical and equitable watershed program.

Unlike the field trip held in conjunction with last year's meeting in Lincoln, Nebraska, the tour planned by the Georgia host committee for the 4th National Watershed Congress gave the conferees an opportunity to view a watershed which has been developed with more in mind than solely agricultural and flood prevention benefits.

A theme that was repeated throughout the program was launched by the first speaker, U. S. Senator George D. Aiken of Vermont, ranking Republican member of the Senate Committee on Agriculture and Forestry. This was the theme of coordinated resource planning and management on the watershed basis.

"The farms, the ranges, the forest, an adequately controlled water supply," Aiken said, "are the media through which the future security and prosperity of all people may be insured. The public should be made aware of this fact."

Aiken reviewed briefly what he described as the ten specialized conservation programs presently sponsored by the federal government which seek to accomplish at least ten different purposes, among them, "the production of timber, particularly softwood timber and pulp."

The senator said the conservation reserve section of the Soil Bank Act of 1956 "can be a most important factor in watershed protection and improvement programs." He envisioned accelerated progress in planting lands to trees now that there is an improved outlook for seedlings, and recommended that the conservation reserve be enacted into permanent law.

And finally, he compared the coordinated approach made possible by planning on the small watershed level to the ultimate objective of attaining planning based on multiple use concepts in all conservation endeavors. This, he viewed, as a heartening and welcome trend.

Thomas B. Nolan, director of the U. S. Geological Survey, told the conferees that there are 1,300,000 millions of gallons per day of water available for use. The present daily draft against this supply is about 240,000 million gallons per day of which public supplies account for "about 7 per cent of the total, industrial use about 46 per cent, and irrigation about 46 per cent."

The need for instilling in the public an awareness that the watershed protection program involves more than an obvious opportunity for self benefit was urged by Thomas R. Evans, superintendent of game management for the Illinois Department of Conservation. Citing experiences from his broad background in soil and water resources fields, Evans stated that the U. S. Department of Agriculture, as the administrator of the national watershed program should move to increase public understanding in that watershed development involves all resources and management programs, including forestry.

This is important, Evans stated, if the local groups are to accept and properly discharge the responsibilities and obligations created with the enactment of the watershed protection and flood prevention act, Public Law 566 of 1954, as well as any other authority, state or federal.

This theme was continued by W. Turner Wallis, engineer, Florida Internal Improvement Fund, the final speaker of the opening session. Elaborating on the types of local organizations to facilitate group efforts in watershed development, Turner warned that the key to a successful effort, no matter the type of organization formed to do the job, is coordination—the recognition of the needs and viewpoints of all agencies and all people within a watershed.

Attention was focused on specific aspects of demand in relation to water supply for industry, municipalities, urban and regional develop-

(*Turn to page* 61)

Interior Secretary Seaton (right) with President and Mrs. Don P. Johnston, of AFA

AFA, Interior and State of Oregon cannot afford to sit by supinely and see Indian forests butchered, Secretary warns; plan pledged for presentation to the next Congress

AFA HEARS SEATON

Address by Fred A. Seaton, Secretary of the Interior

A DISTINGUISHED scientist recently predicted that by the middle of the twenty-first century, the earth would be populated by 9 billion human beings—four times as many as today—and that these people, their food and water in short supply, their reserves of many minerals exhausted, could be having a real struggle for existence.

No one really knows, of course, whether such a gloomy prophecy will ever come true. Personally, I doubt it. Human resourcefulness, ingenuity, and invention should in the end, be able to prevent any such calamity.

Nevertheless, whatever threatens our natural resources throws a shadow across the future of the United States.

It does seem unmistakably clear that now is the time to think and plan as creatively as possible about meeting future problems of supply. These problems are inescapable consequences of our country's and the world's enormous increases in the population, and the insatiable demands of our booming industrial economy for minerals, fuels, electric power, raw materials and water.

A realization of this fact is the basis of the natural resources program of the Eisenhower Administration.

For example, the Bureau of Reclamation of the Department of the Interior and the Corps of Army Engineers now have underway nearly three hundred projects for flood control, water supply, irrigation, navigation, and power. This is one of the most comprehensive such programs in American history. It is clear-cut evidence of the administration's dedication to the cause of wise and proper conservation of the nation's natural resources.

Two years ago, the President vigorously supported, and the Congress passed, the largest irrigation measure ever authorized in a single piece of legislation—the Upper Colorado Storage Project.

Why did the President urge this legislation? First and foremost, because it was far beyond the means of any organization—public or private—other than the federal government.

What will this project do?

It will bring about stabilized and beneficial control over the water which now flows down the watersheds of a five-state area at a widely varying rate: 5 million acre-feet in one year, 20 million acre-feet in another. The project will mean hydroelectric power—at least a million kilowatts—for homes, for businesses, for schools, for farms. It will bring water to more than 360 thousand acres of thirsty land in the Upper Colorado River Basin—in the states of Wyoming, Utah, Colorado, Arizona, and New Mexico.

Once completed, the Upper Colorado Project will be a giant's step forward in water conservation for the nation.

It will not be the final step, by any means. Within a relatively few years, water may well be our number one domestic problem.

By 1975 our population will need at least 450 billion gallons of water a day, almost twice what we need now.

Academically, it would be possible to build enough more reservoirs to gain for ourselves a national supply considerably in excess of the 1975 demand. But a reservoir has to be in the right place, both to store water and to distribute from it. As an illustration, thirsty people in Texas won't feel any better for being told that their fair share of the national supply is in a reservoir up in Montana—unavailable to them.

Even if we could distribute the supply effectively in the next decade or so, what about the years after 1975—the year 2000, the year 2050?

(*Turn to page* 46)

MADISON BOARD MEETING

AFA Board urges enactment of Morse Access Roads and Engle Military Withdrawal Bills; Foresters restrained in push for federal purchase of Klamath Indian lands in Oregon

AFA's Board at Madison, Wisconsin — Photos by Dean Tvedt, Wisconsin Conservation Commission

WESTERN legislative problems occupied the attention of the Board of Directors at its meeting on September 29 at Madison, Wisconsin. Declaring that we are not getting anywhere near the allowable cut on western national forests, the board by resolution urged enactment by Congress of S. 1136 introduced by Senator Wayne Morse and called for appropriation of 35 million dollars for the purpose of constructing access roads that will improve all phases of management on these lands.

The board's action followed publication of articles by Senators Morse, Hayden and Magnuson in *American Forests* which called attention to the fact that inequities are being created by the failure of Congress to appropriate sufficient funds for access roads construction. With Congress caught in the throes of the stiffest economy battle since the war, it appropriated only three million dollars for access roads at its recent session.

Western board members who concurred that 35 million dollars should be appropriated at once for the roads program stipulated by amendment to the resolution, that all roads built under the program should be constructed under Forest Service road building specifications and no others. In some instances, national forests road building programs have been entirely too elaborate and resorted to too much landscaping and other "frills," western members said. These members further stated that 35 million dollars annually would represent only half of the amount actually needed to put the roads program in efficient shape and that Congress will never appropriate the full amount actually needed. That being the case, these members urged that AFA fight hard to have 35 million appropriated next year and that the other 50 percent be built under contract by timber firms purchasing national forests timber.

False Economy Scored

In endorsing the Morse bill, the board concurred that it is false economy to hold down access roads appropriations that result in increased revenue to the federal treasury and additional funds for roads and schools in counties where timber is harvested.

However, the board rolled back a concerted effort by professional foresters to have the association take the leadership in urging federal purchase of the Klamath Indian lands in Oregon. Liquidation of these holdings has been deferred until the end of the next session of Congress. A bill now pending (S. 2047 introduced by Senators Morse and Neuberger) would transfer the timberlands on the reservation to the Forest Service and the Klamath marsh to the Fish and Wildlife Service.

While there was agreement on the board that the marsh should unquestionably be set up as a national wildlife refuge, there was a hot fight over the proper disposition of the valuable ponderosa pine on the reservation. Chief Forester Kenneth B. Pomeroy told the board there is no middle ground on this problem —that it is either a question of liquidation or turning the forest over to the Forest Service for continued sound management.

Board members conceded that this may prove to be the only solution but some aren't prepared to admit

(*Turn to page* 44)

TD-24 Planet Power beats "dead-track drag"...boosts

—for Harper Brothers Logging Co., Eugene, Oregon

Here's the way Malcolm Harper, of Harper Brothers Logging Co., Eugene, Oregon, describes their firm's experience with International TD-24 crawler performance:

"TD-24 ability to steer with live, *full-time power on both tracks* is the feature that puts this crawler ahead of all others. Over 500 hours of use building roads and logging have proved to us the value of being able to steer without having to drag a dead track around half the time.

"The TD-24 almost builds its own roads by hugging the mountain slopes *with full power on both tracks* and pushing a full load ahead of the dozer.

"On actual logging, the TD-24 can turn smoothly up adverse grades with as big a log load as it can pull straight ahead.

"Record bf on the landing"

"With Torque-Converter drive, the TD-24 has combined smooth, easy operation with terrific pulling power—that puts a record-making board feet of logs on the landing."

Prove what it means in logging profit production to command International TD-24 capacity with *time-proven* and *exclusive* Planet Power steering control. Try this fingertip full-load steering that gives you full-time live power on both tracks while turning—eliminates power-wasting, load-limiting "dead-track drag." Try instant, stall-preventing Hi-Lo shifting. *Compare* the TD-24 to anything else on tracks! See your International Construction Equipment Distributor for a demonstration.

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180 North Michigan Ave., Chicago 1, Illinois

A COMPLETE PACKAGE INCLUDING: Crawler, Wheel, and Side-Boom Tractors... Self-Propelled Scrapers and Bottom-Dumps... Tractor and Rubber-Tired Loaders... Off-Highway Trucks... Diesel and Carbureted Engines.. Motor Trucks

steering
log and road production

Operating in U. S. Forest Service timber northwest of Eugene, Oregon, Harper Brothers Co. do most of their falling in winter, when snow prevents trucking. During logging season, the torque Converter TD-24 "bobtail skids" the logs to the landing. Before taking out any logs, the Harpers built a 2-mile road with over a dozen switchbacks up steep mountainside.

Joseph D. Kobus (left) receives Medal of Honor from Dr. Richard E. McArdle

Dr. McArdle congratulates Chester D. Cannon on winning fire fighting award

"...FOR VALOR"

FOR acts performed on actual forest fires far above and beyond the call of duty, Chester D. Cannon, Jr., of Alturas, California, and Joseph D. Kobus, Carmel Valley, California, were awarded American Forest Fire Medals—forestry's "Congressional Medal of Honor." During the past twenty years, only 11 medals had been presented, four of them posthumously.

R. E. McArdle, Chief of the Forest Service, Department of Agriculture, presented the medals to these two Forest Service employees for the American Forest Fire Foundation at The American Forestry Association's annual banquet at Madison, Wisconsin, on October 1. Cannon was cited for heroic action on the McKinley fire in California, and Kobus for courageous performance on the Thompson Peak fire in California.

In recognition of unusual courage, competence, leadership and fire fighting skill in saving the lives of 59 men on the McKinley fire, September 22, 1956, Mr. Cannon was selected for this citation. On this fire suppression assignment Cannon was in charge of a 35-man Folsom Prison inmate crew, assigned to a particularly difficult "slop-over." He was instructed to tie in with the sector boss and 20 Hopi Indians constructing line down a ridge one-quarter mile below. During the day Cannon became concerned over the large volume of smoke and fire at the point where he had left the Indians and went to investigate. In route, he met the sector boss and the Indians running up the canyon with shoes and tools discarded. The fire had jumped the line on both sides of the canyon.

Cannon observed that the fire was too hot for a break-through, and that it was rapidly attaining "blow-up" proportions. He had to quiet the excited crews and then led them to a small rock slide and told them to cut and pile brush on the down canyon side. When Cannon felt the draft of the "blow-up" fire he set his backfire which was pulled rapidly down hill toward the main fire. The crewmen were then told to use their hard hats to dip water from pools to cool embers in back-fired areas, and then lie down in the burned area. Through Cannon's skillful action no one suffered from heat or smoke, and no one was injured.

Joseph D. Kobus received this signal honor for outstanding performance and heroic action in voluntarily joining four inexperienced firefighters entrapped by the Thompson Peak Forest Fire, September 6, 1955. Two crewmen and two catskinners were being trapped by a major breakthrough. Kobus, an experienced fire fighter tried to warn them and then went down to where they were working to try to maneuver them out of the area. But, all escape routes were cut off. He had to calm the men who had become quite panicky, and then decided that their only chance was to clear a safety zone with bulldozers. Time was so short that they were able to clear only a small spot before the fire reached one side of their safety zone. Kobus immediately fired out the bottom strip next to the advancing fire front. From this point on, it was a matter of maneuvering the cats, keep them in the least hot portion of the escape strip, and use them as a shield against the heat. As soon as the surrounding area had cooled off, Kobus brought his charges out with only the discomfort of very minor burns and a bad scare.

AFA Awards Committee Chairman Louis Wilson (left) congratulates Conrad Wirth

"...FOR DISTINGUISHED SERVICE"

Tom Wallace

David T. Mason

Conrad L. Wirth

Traul G. Walters

Frank B. Hubachek

"WE are here tonight to honor some of those who, each in his own way has contributed to this goal of living in harmony with land," Louis H. Wilson, chairman of AFA Distinguished Service Awards Committee, told the annual meeting banquet before presenting the 1957 Awards. Mr. Wilson drew his remarks from that noted conservationist Aldo Leopold who defined conservation as "a state of harmony between men and land." This lofty conservation goal, Mr. Wilson said, "was not one that all men would necessarily achieve, but one that some men would try to achieve." The Awards were presented to five individuals who had made outstanding contributions to accomplish this end.

Tom Wallace, editor emeritus, *Louisville Times,* Louisville, Kentucky—Award in the Field of Public Information. "He is perhaps the outstanding lay scholar of conservation in the nation . . . and he is one who must be regarded as the foremost chronicler of American conservation for a half century. . . . He had a bulldog tenacity for digging up the facts about the condition of our conservation estate and a powerful capacity for expressing indignation when land abuses were uncovered. . . . People have sensed that his towering indignation is the reflection of his deep love for both land and life upon it."

David Townsend Mason, of the consulting firm of Mason, Bruce and Girard, Portland, Oregon—Award in the Field of Business and Industry. ". . . His studies on forest taxation and credit alone may well prove to be his crowning achievement, for the future will show these concerns to be closely identified with the continuation of private forestry in America. He is rightfully honored as the man who crusaded for the forestry principle of sustained yield . . . the workability of this formula is written . . . on millions of privately-owned and industrial acres . . ."

Conrad L. Wirth, director of the National Park Service, Washington, D. C.—Award in the Field of Public Servants. "Thousands of children yet unborn will bless his name . . . In history he will be recorded as the individual who stemmed the grave threat posed by human erosion in our national parks . . . His achievements aptly have been described by a former director of the National Park Service as 'second in importance only to the creation of the parks themselves.' . . . The American Forestry Association wishes to say 'Thank you' to the man who created and activated Mission 66 to perpetuate our priceless national parks."

Traul G. Walters, Georgia Supervisor of Agricultural Education, Atlanta, Georgia—Award in the Field of Education. ". . . one of those . . . catalytic agents who has sensed that deep in the heart of every southern boy and girl is a deep, abiding love of land inherited from land-loving ancestors, and that this inheritance could be molded, perfected and put to useful purposes . . . This educator's program reaches 412 schools in 152 Georgia counties and this program has placed its stamp of green on the Georgia countryside . . . His crop of teachers preach good forest practices . . ."

Frank Brookes Hubachek, lawyer, of Glencoe, Illinois—Award in the Field of General Service. ". . . It is probable that there would be no Quetico-Superior Wilderness as we know it today, had it not been for the tireless devotion of this modest man. Certainly there would be no Quetico-Superior Wilderness Research Center, the only one of its kind in the world, for this man originated and supports that unique program himself. Miles of shoreline, island gems rescued from exploitation and preserved as primitive areas, are but a few of the monuments to this man's generosity and far-sightedness . . ."

Klamath Hearings in Oregon

By WILLIAM DEAN

THE stack of information and opinion on the proper method of disposing of the timber-rich Klamath Indian Reservation grew several inches in height early in October when hearings were conducted in Oregon by a Senate subcommittee.

The three days of hearings conducted by Senator Richard Neuberger of Oregon developed little new factual material, but did show that—in Oregon, at least—there is substantial support for the Neuberger-sponsored S 2047 which would authorize federal purchase of Indian timberlands.

Although some references to the social problems being created by the termination program underway on the reservation crept into the testimony, most witnesses held themselves to a discussion of the resource problems and Senator Neuberger's proposed solution. That solution calls for the appropriation of $100 million or more for federal purchase of the tribal holdings, to be followed by management of the land by an "appropriate agency." It apparently is contemplated that the timberlands will be administered by the U. S. Forest Service and that the marshes will be handled either by the Forest Service or the Fish and Wildlife Service.

Several witnesses voiced reluctance during the three days to have any federal purchase of timberlands in a state in which more than half of the land area already is federally-owned. However, even those witnesses acknowledged that they preferred federal purchase of the reservation lands to the method of liqui-

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KLAMATH EDITOR SPEAKS

By FRANK JENKINS
Editor, "Herald and News"
Klamath Falls, Oregon

PICTURE to yourself a county in the Far West state of Oregon in which 67 per cent of the land area is government owned and therefore non-taxable. Imagine that you were living in this county. Then ask yourself how you would feel toward a proposal involving these alternatives:

1. Sale of some 700,000 acres of tribally-owned and, therefore, non-taxable commercial timberlands to private owners who would pay taxes.

2. Sale of all the tribally owned lands of the Klamath Indian reservation (some 863,000 acres) to the federal government, which would not pay taxes.

If you live anywhere east of the Rockies, I am sure you would prefer to get this large and valuable property onto the tax rolls. What I want to say here is that an overwhelming majority of the people of Klamath County, Oregon, favor purchase of the huge and valuable Klamath Indian reservation by the federal government.

They feel that the Klamath reservation is the national heritage of the Klamath Indians. It was granted to them by the government of the United States in a formal treaty in which the Klamaths gave up hunting lands they valued. It is all they have.

Termination of the Klamath reservation is proposed by Public Law 587, enacted by the 83rd Congress. This law provides that any member of the Klamath tribe who wants to get his share in cash may elect to do so. It is presently anticipated that some 70 per cent of the members will want their share in cash. In order to get the money to pay off the withdrawing members the law provides for the sale of a sufficient amount of the tribal assets, in relatively small parcels, to the highest bidder. The commercial timber constitutes the bulk of the liquid tribal assets.

If a high percentage of the Indians elect to take their share in cash it will mean that a huge volume of timber will be thrown in what amounts practically to a fire sale on a timber market that is presently glutted.

That will mean that these Indians will be robbed of a large share of their patrimony. Under existing conditions in the timber market, its provisions must inevitably work a bitter injustice upon the members of the Klamath Indian tribe.

As an alternative, Senator Neuberger of Oregon has proposed that the federal government buy the timber lands of the Klamath reservation outright at the price set by the appraisers as provided in the law, the timber to be cut and sold on a sustained yield basis. The money, estimated at around $100,000,000 would be divided among the members of the Klamath tribe on a per capita basis.

The federal government would acquire an immensely valuable body of timber whose sale on a sustained yield basis would eventually return to the federal treasury the money appropriated to buy it. The Klamath Indians would be honorably dealt with and an important resource of the Klamath region would be marketed on an orderly basis that would sustain and protect the economy of the Klamath Basin.

Under the provisions of Public Law 587, the timber would be cut on a boom and bust basis that would seriously affect the future economy of the area. In addition, rapid cutting of the timber would result in great damage to the water resources of the area, for the water of the Klamath Basin has its source very largely in the Klamath Indian reservation.

By ALBERT G. HALL

THE EIGHTY-FIFTH CONGRESS in its first session initiated a number of bills affecting forestry, but few measures were enacted. All bills introduced in the first session carry over into the second.

APPROPRIATIONS FOR FORESTRY ACTIVITIES OF THE FEDERAL AGENCIES did not feel the effect of the budget-cutting mood of the Congress. Funds for the U. S. Forest Service, including indefinite appropriations, amounted to $167,213,400, an increase of $20 million over the previous year. Interior Department agencies received slight increases.

ATTEMPTS TO KILL OFF THE SOIL BANK ACT by denying the use of appropriations for extending the program to new contracts were made in the House, but funds and authority were restored by the Senate, and the Agriculture Appropriations Act finally approved by both Senate and House gave the Soil Bank a new lease on life. It is expected that attempts will be made to amend the act in the next session, but it is unlikely that the Conservation Reserve provisions under which agricultural acreage is converted to forest plantations will be dropped. If any changes are made in this phase of the program they will probably broaden the authority to encourage greater participation by farmers.

PUBLIC WORKS APPROPRIATIONS totaling $858 million for rivers, harbors, flood control and reclamation were passed; and the Senate has approved additional authorizations for public works projects amounting to $1.6 billion. If these authorizations are approved by the House (and not vetoed by the President) the backlog of approved projects will total around $10 billion. Last year the President vetoed a somewhat similar authorization bill because it contained projects which had not been requested or approved by the Corps of Engineers. The present bill also contains some such projects. The huge backlog of public works projects, many of them have been approved a number of years ago, has prompted Representatives McIntosh of Michigan and McGregor of Ohio to introduce bills seeking to de-authorize projects which have been authorized for more than 10 years and for which no appropriations have been made. So long as such projects remain authorized there is always the danger that they may be used for log-rolling purposes, even if they are no longer economically feasible. (The McGee Bend Dam in east Texas, for example, has received appropriations for the past three years even though no budget request has been made for it, and despite studies by the Corps of Engineers which show that the authorized project will cost at least $21 million more and unnecessarily inundate some 60,000 more acres of timberlands than would be the case if the Corps' modified project were built instead.) It is expected that the McIntosh-McGregor bills will receive action in the next session.

FEDERAL REGULATION AND CONTROL OF MOVEMENT OF PLANT PESTS was broadened by the passage of Public Law 85-36. Purpose of the legislation was to provide for the control of fire ants and several other pests. As enacted, the law gives to the Department of Agriculture specific authority to regulate and control importation and interstate movement of plant disease-bearing organisms.

SEVERAL INTERSTATE COMPACTS FOR FLOOD CONTROL AND WATER DEVELOPMENT were given the consent and approval of the Congress. In this respect, Administration policy toward encouraging the states to undertake solutions to their water problems, with such federal assistance as may be necessary to serve the national interest, was given Congressional approval.

THE SENATE COMMITTEE ON PUBLIC WORKS has reported a resolution calling for additional

(Turn to next page)

information analyses of public works projects, including benefit-to-cost ratios based on project life of up to 100 years and evaluation of anticipated recreational benefits and tax enhancement. The measure failed of passage on a calendar call, but is still eligible for Senate consideration. If passed, it would make possible the approval of projects which under existing standards would be economically unfeasible.

PRICE REPORTING FOR FOREST PRODUCTS proposed over the past two years is expected to see lively action in the next session. As a result of Senate action in the 1957 Agricultural Act, the Forest Service has reported a study of price trends and relationships. Senator Ellender of Louisiana, chairman of the Senate Committee on Agriculture and Forestry, has promised that he will see the price reporting measure through the Senate. Proponents contend that forest products price reporting is essential to the practice of forestry on small woodlands; opponents declare it to be unneeded and costly legislation that will lead to establishment of parity prices.

CELEBRATION OF THE 50TH ANNIVERSARY OF THE CONSERVATION MOVEMENT has been approved by both Senate and House, but House amendments will make conference action necessary before the measure is enacted. House amendments limit the authorization for federal appropriations for the celebration to $20,000, it being expected that the participating organizations will pay the greater part of any necessary expenses.

HEARINGS WILL BE HELD IN THE WEST IN DECEMBER on a 13-year program for timber access on national forests. The measure, supported by a number of Northwest Senators and Representatives would provide for a total expenditure of $572 million for main line access necessary to better management and harvest of national forest timber.

A NUMBER OF MEASURES AFFECTING FOREST RECREATION HAVE BEEN INTRODUCED. These include a proposed 10-year plan for recreational development in the national forests, several bills to provide for earmarking of forest receipts for recreational use, and establishment of multiple use as a policy of the Congress. The Senate has passed a bill calling for a National Outdoor Recreation Resources Review; and the Park Service is preparing plans for the making of such a review under existing authority. Both the Senate and the House have held hearings on the numerous measures seeking to establish a National Wilderness Preservation System; and the Forest Service has suggested a substitute bill which would apply only to national forests. Between sessions, the proponents of the wilderness bill have been rewriting the measure in an attempt to overcome some of the objections that have been raised to the original bill. A bill to require recreational and wildlife planning and land acquisition in public works projects was reported by the Senate; another, to include recreational benefits under the federal cost-sharing provisions of the Watershed Protection and Flood Control Act was reported by the House.

LAND ACQUISITION POLICIES OF THE ARMY AND DEPARTMENT OF THE INTERIOR in relation to reservoirs and dams have been studied by the House Committee on Government Operations. In 1953 the Army and the Department of the Interior adopted a "Joint Land Acquisition Policy" which resulted in a practice of taking in fee only such land as was needed for the pool. Flowage easements are taken on lands on which infrequent flooding might occur. The committee's majority report calls for the scrapping of the present policy so that recreational opportunities might be provided through additional land acquisition, unnecessary to the purposes of the projects. A minority report filed by thirteen members of the committee urges retention of the current policy. The committee has asked the Departments of the Army, of the Interior, and of Agriculture to report by March 1, 1958, on the practicability of transferring public lands to forest owners in exchange for private lands when they are acquired for reservoir projects.

TERMINATION OF FEDERAL CONTROL OVER THE PROPERTY OF THE KLAMATH INDIANS has been delayed until 1961; and a bill by Senators Neuberger and Morse providing for the federal acquisition of the Klamath lands is now receiving considerable attention. Hearings on the measure were held in Oregon in October (See page 12), and further hearings will be held in Washington, D. C. after the Congress reconvenes in January. A bill to delay termination of federal control of the Menominee tribe in Wisconsin has been passed by Senate and House and now awaits conference action.

Editorial — Board Stresses Northwest Problems

The Board of Directors of The American Forestry Association devoted much time to forestry problems in the Pacific Northwest at Madison, Wisconsin. Impressed by recent statements by Congressional leaders stressing the need for stepped-up access roads appropriations on Northwest national forests, the board unanimously endorsed S. 1136 introduced by Senator Morse and urged appropriation of 35 million dollars for such purposes next year as compared to three million dollars this year. The board said it is unwise to hold down such appropriations in the name of economy when these appropriations—actually they are investments—return dividends to both the federal treasury and the counties involved and assure improved management practices.

The board devoted four-and-a-half hours to the problem of what to do about the Klamath Indian forest and marsh in Oregon, the disposition of which will set a precedent and have an enormous influence on the disposition of other Indian forests. The board passed a resolution urging that "the disposal of timberlands in the Klamath Indian Reservation should be made under such conditions as will assure sustained forest production and maximum permanent contribution to the economy of the area including the economy of the Indians themselves." Secretary of Interior Seaton said much the same thing in his address at Madison. He pledged that his department would not sit by supinely and see the Indian forests butchered. He said AFA could not afford to either.

Some foresters and newspapers were disappointed by AFA's resolution and felt that it dodged the real issue. However, there is more substance and wisdom in both of these statements than critics would imply. Both are now on record that continued stable management must constitute the bed rock of any program adopted. Both are on record that they will not willingly permit the forest to be splintered off and possibly destroyed which *could* happen if the deferment of Public Law 587 is merely permitted to run its course with no positive plan agreed on.

In the board's judgment, perhaps even more important at this stage of the game than a solution itself, is the creation of a reasonable climate for the give-and-take of negotiation. From the standpoint of AFA, which might be able to serve eventually in a conciliatory capacity, perhaps it is best at this juncture not to be *too* opinionated or *too* positive. As Secretary Seaton said, public purchase represents one solution and he for one will welcome any alternate plan equally workable. AFA concurs. To foresters who urge support of the Morse-Neuberger Bill that would transfer the forest to the Forest Service and the marsh to the Fish and Wildlife Service, the board is saying in effect, "You may be right that this is the only workable solution. But since the Indians themselves seem to be somewhat unpredictable, we are going to require a meeting of minds on the part of all groups—foresters, conservationists, friends of the Indian and the public. Industry, particularly, which has done so much for forests and foresters should be welcomed to the counsel table for a free exchange of ideas that can be critically examined by the public at large."

The picture is not without its bright spots, in the board's opinion. In Seaton, Interior has a Secretary who sincerely wants to do the right thing, the board believes. The board was impressed by Seaton. Out in Oregon last month, Senator Neuberger's Senate Subcommittee on Indian Affairs was making an equally conscientious effort to get all the facts out on table. Both Senator Neuberger and the committee are to be commended for this effort to create a reasonable climate for discussion. Industry, which has been understandably wary of becoming embroiled in an Indian problem that is always explosive and a conservation problem that usually is explosive, was encouraged to submit its ideas for the first time before this committee as was the Western Forest Industries Association. Their proposals will be explored in detail in the next issue of AMERICAN FORESTS as will any others that are submitted.

Perhaps apropos to this topic, Karl T. Frederick, senior member of AFA's board, recently said that the thing about President Theodore Roosevelt that always impressed him was the fact that "Teddy" knew when he could afford to "play around" with a problem and make capital of it, and he also knew when to play it softly, because something was really serious. This Indian problem comes under the heading of really serious problems. It could easily be exploited by many individuals and groups. Yet, there is some reason to believe that all parties concerned may yet be brought together in a spirit of mutual trust and good faith that will ultimately assure the welfare of the Indians, the economy of the Klamath area, and its great forest and marsh. But first, the Indians must face up to their responsibilities and agree to agree among themselves. Their failure to do this will lend strong support to an earlier suggestion (Feb., 1957) by *American Forests* that P.L. 587 be repealed.

On other fronts, the board endorsed Rep. Engle's Bill (H.R. 5538) to have Congress examine all military withdrawals of public lands of 5,000 acres or more. The board passed a resolution calling for a two-fisted action program and necessary enabling legislation to plant trees, shrubs and wildlife thickets along roads built under the new highway act. Accent on fast-growing trees of a bushy variety would be given priority by the board.

A high-level suspension bridge with 120-foot clearance will replace Roosevelt Bridge, left

Logs are floated down thaw-swollen tributaries to feed mills along St. Lawrence River.

Lower Beauharnois Lock, under construction, will lift ships from waters of Lake St. Louis

SEAWAY TO

Illustrated map shows the Hinterland of the Seaway Coast, the richest in the world.

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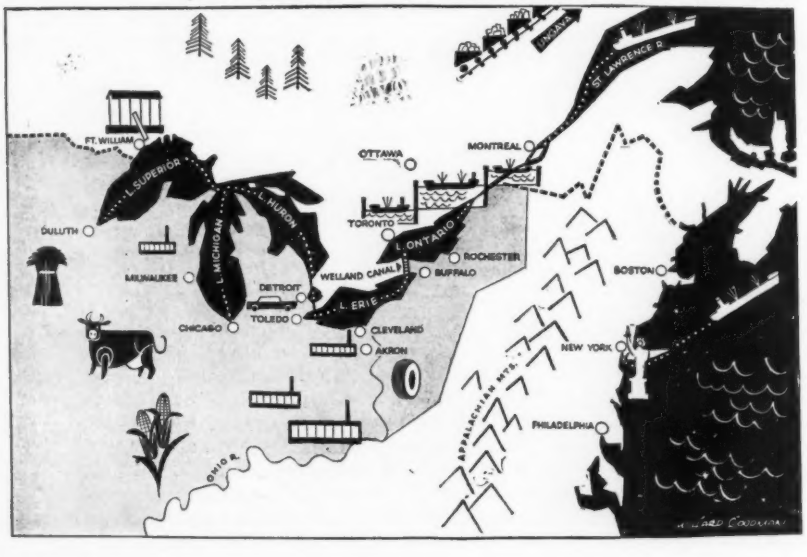


HUMAN history offers no example more impressive than the St. Lawrence Seaway and power projects in showing the impacts of forests, rivers, canals, and lakes on the vital relations of neighbor peoples.

Canada and the United States share equally the ownership of all the Great Lakes except Lake Michigan. The St. Lawrence River connects the chain of Great Lakes to the Atlantic Ocean and is a Canadian river except for a 114-mile strip along the international boundary eastward from Lake Ontario.

Development of the St. Lawrence for deeper navigation and greater hydro power is an example of international cooperation deserving the attention of the whole world. Part of the Seaway canals and locks are in Canada and part are in the

Beneath the 3,800-foot main span of Mackinac Bridge will stretch the Seaway channel between Lake Michigan and Lake Huron

PROGRESS

By H. D. CRAWFORD

United States. St. Lawrence power is being developed jointly by New York State and the Province of Ontario.

A power official from another part of the world visited the St. Lawrence construction region recently on the Canadian side. He was deeply impressed by the drama of construction and the immensity of the 3,300-foot St. Lawrence Powerhouse rapidly taking form in concrete and steel. There was just one thing about it that this gentleman could not comprehend: he could not understand that the international boundary runs right through the center of this enormous structure and that half of its 32 generators belong to Canada and the other half to the United States.

Napoleon once said, "A river is a road in motion." The St. Lawrence Seaway is a whole network of roads in motion: water roads from the world's greatest freshwater lakes, 2,000 miles inland in North America's heartland, to the Atlantic Ocean.

"The waters of the St. Lawrence rolled through a virgin wilderness, where, in the vastness of the lonely woodlands, civilized man found a precarious harborage at three points only—at Quebec, at Montreal, and at Three Rivers," wrote Francis Parkman, the famous historian, many years ago about early French explorations. Ever since those early Frenchmen pushed inland over its forest-fringed waters, the St. Lawrence has served both as cradle and Main Street to Canadian history. The St. Lawrence and its tributaries still provide sites for numerous forest-product industries, particularly newsprint and other paper mills.

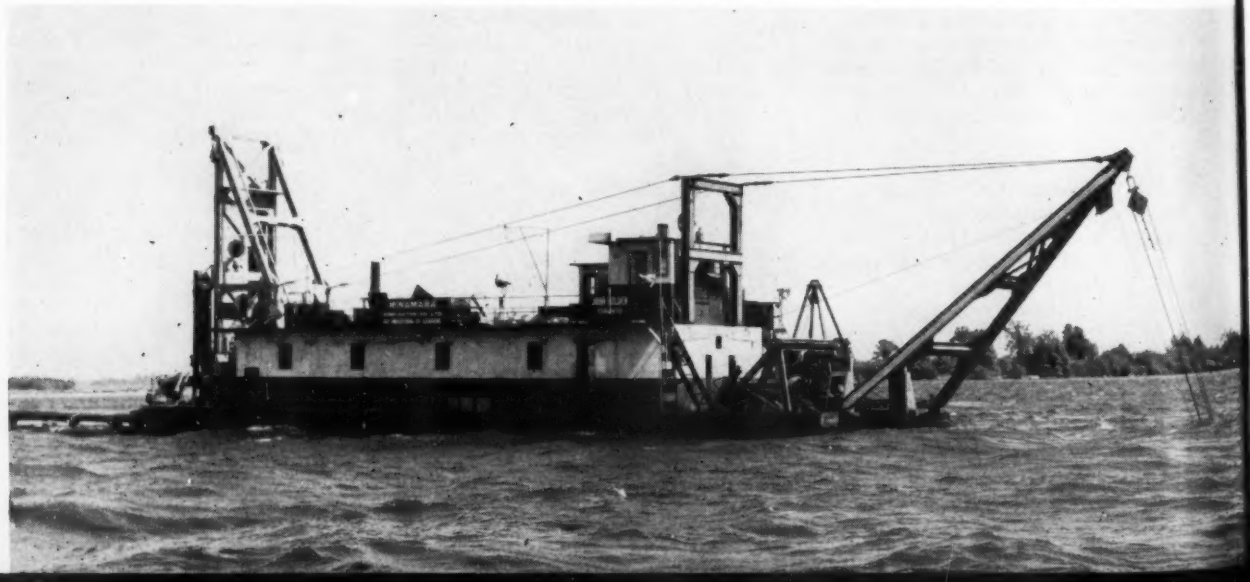
Spring log drives from "the bush" down rivers that flow into the St. Lawrence have been a dramatic and picturesque part of eastern Canadian life for generations. Pulp and paper have long been Canada's No. 1 industry, and American newspapers receive approximately 80 percent of their newsprint from Canada.

"Pulp and paper is not only the major, but the fundamental industrial force which has shaped the social and economic development of Canada," according to the Canadian Pulp and Paper Association. "No other industry has, and has had, such far-reaching effects upon the economy. And every Canadian is touched, directly or indirectly, by this enterprise which converts the

Lookouts have been provided along the St. Lawrence to enable visitors to observe construction from safe distances

St. Lambert Lock, most easterly of the seven Seaway locks, will have 15′ lift and requires 600,000 tons of concrete

This suction dredge is deepening the future Seaway channel to 27 feet in Lake St. Francis, between Cornwall, Ont., and Montreal



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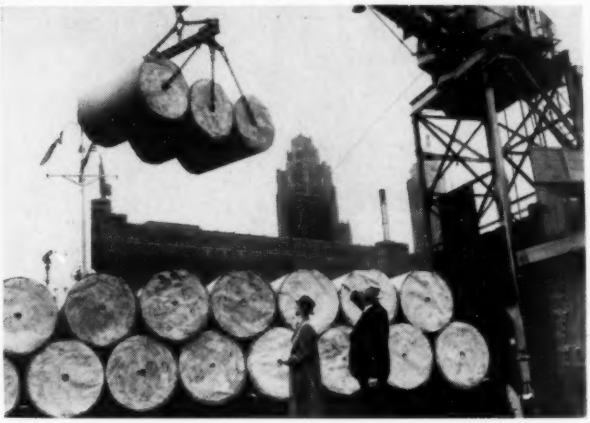
St. Lawrence Seaway development will enable ocean-going ships to navigate channels, canals, and locks to Great Lakes port cities

The *Chicago Tribune* operates its own paper mills in Canada. Its 11-ship fleet carries 375,000 tons of newsprint annually



fruit of the forests into pulp, paper, building materials, plastics, and hundreds of other convenient and economic commodities that have become the symbol of twentieth century living. The level of Canadian well-being has been raised by this great industry; the nation has attained a first rank position in the trading world owing largely to its activities; and its economic potency has helped bring Canada to nationhood."

Quebec and Montreal, as Parkman indicated, are among Canada's oldest cities. Quebec, with its historic port, will celebrate in 1958 its 350th anniversary, being founded as a French town just a year after English colonists landed at Jamestown, Virginia. Montreal, long Canada's largest city, is today the starting point for the billion dollar St. Lawrence development to create electric power and enable ocean-going ships to navigate channels, canals, and locks to Great Lakes port cities.

Seaway and power project construction passed its midway point during the summer of 1957. In 1958, ships that in the past used Canada's 14-foot canals will start navigating through locks and canals of the new Seaway. By the spring of 1959, both the Seaway and St. Lawrence Powerhouse are scheduled to be in full operation. That will mean a 27-foot channel all the way inland to Toledo at the upper end of Lake Erie.

Work began in 1957, also on the deepening of channels between the upper Great Lakes. Their target date for completion is 1962. Meanwhile, major inland port cities—Buffalo, Toronto, Hamilton, Cleveland, Detroit, Chicago, Milwaukee, Duluth, and others—are spending many millions deepening harbors, expanding warehouses, and modernizing waterfronts. All these developments are in preparation for the Seaway Age.

Impacts of the St. Lawrence Seaway upon people are its most important asset. These are numerous

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FOREST RESEARCH AIDS TIMBER UTILIZATION

By M. B. DICKERMAN

M. B. Dickerman, director of Lake States Forest Experiment Station, St. Paul

THE challenge to forestry in the Lake States is big—and ever increasing. Demands for timber are turning upward rapidly, while the supply of hardwoods has increased and the supply of softwoods has decreased. At the same time, nearly a fourth of the forest area needs some planting, and the quality of much of the standing timber is low. Some of these trends are encouraging; others suggest a bigger job for research.

No small part of the current forestry problem in this region is how to aid in efficient and effective utilization of the available timber supply and how to grow more timber of the species, quality, and quantity desired. Essentially this is the challenge, and forest research by various groups is pointing the way to solutions.

For about a third of a century the Lake States Forest Experiment Station of the Forest Service has been concentrating on forest problems in Michigan, Minnesota, Wisconsin, and North Dakota. Slowly but steadily it has evolved an effective research organization and a comprehensive forest research program. Through six field centers located at Grand Rapids, Minn.; Wausau, Wis.; Marquette and East Lansing, Mich.; Bottineau, N. D.; and the Northern Institute of Forest Genetics at Rhinelander, Wis., the station is tackling forest problems where they are.

Working with the universities, the forest industries, and various public agencies, the station's forest research effort now covers a multitude of subjects — genetics, entomology, pathology, silviculture, economics, watershed management, and timber utilization. In each of these, increasing attention is being given on how to improve growth and assure fullest use of the timber resource.

Two main facets of the cooperative forest research effort in aiding better timber utilization are (1) studies which show how to grow and protect desirable species and stands, and (2) ways and means of achieving more efficient timber harvesting and utilization. The first facet—the forest management research—is of long standing. Already it has provided some guides for managing the more important tree species in the region. More recently attention has been turned to harvesting and utilization problems, and research in these fields is increasing. The station, working closely with the Forest Products Laboratory, already has a number of significant utilization studies underway.

The timber industry of the Lake States region now uses annually two-thirds of a billion cubic-feet of locally grown timber. Continued use on this scale is based on not only the merchantable timber now standing but also the potential growth. Forest management is the key to providing an ample timber supply. To be effective, such management must be grounded on knowledge—the results of forest research.

Let's look one by one at the three attributes of timber supply — (1)

Disseminating research findings through "show-me" trips is one way Station aids woodland owners. Here group observes results of cutting on Wausaukee Forest

Genetically superior trees are being sought as a means of improving the quality of future timber stands

preferred species, (2) sufficient volume, and (3) required quality—and what forest management research is doing to achieve them.

The history of timber use in the Lake States is one of change. The original sawmilling industry in the area was based upon the extensive stands of red and white pine, which were so important to the building of the midwest farms and westward expansion of the nation. Exhaustion of pine resulted in decline in lumber production, with many of the sawmilling companies migrating to the West. Others turned to the hardwoods of the northern part of the region; and these hardwoods still form an important part of the lumber production of the Lake States.

The early pulpmills were attracted to the area by the abundance of spruce timber and the plentiful water supply. Aspen, once considered a weed tree and covering one-third of the total forest land, is now the largest volume pulpwood species of the region. Literally springing from the ashes of the original forest, it can truly be called the Cinderella of the trees.

Although further development of processing methods may result in

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The good-quality logs at this Lake States mill (above) have a ready market and demand premium prices. Trees with poor-quality logs, such as shown on log deck (below) must be removed to make room for sound, young trees. Quality studies point to utilization and marketing problems

American Forests

BONNIE OAKS

Photos by Dean Tvedt
Wisconsin Conservation Department

F. N. Fixmer, chairman, Wisconsin Tree Farm Committee, presents Tree Farm sign to Miss Katharine Green and Mrs. Mildred Ormsby Green, owners of Bonnie Oaks Centennial Farm

Bernard L. Orell, Weyerhaeuser Sales Company, St. Paul, told the gathering that tree farming has had a tremendous influence on development practices and utilization in the United States

Visits A Tree Farm

AFA members arrive for tree farm dedication

MEMBERS of The American Forestry Association meeting at Madison, Wisconsin, paid a visit to Mrs. Mildred Ormsby Green and her daughter, Katherine, on October 2, near Briggsville. Purpose of the visit was to dedicate the Green's Bonnie Oaks Farm as a certified Tree Farm. Ten other tracts were ushered into the Tree Farm family on the same occasion.

The famous Green oaks were resplendent in their fall colors as several hundred AFA members disembarked from their busses for the ceremony. The Greens said their 80-acre farm had been in their hands ever since 1857 when they left the leathercraft business in Vermont to take up farming in Wisconsin. Their farm consists of 80 acres—50 in woods, 20 in marshland and 10 tillable.

The Greens said they have hand-planted 22,000 pine trees among the oaks, averaging about 2,000 seedlings annually. In 1953, oak wilt struck and foresters recommended an immediate forest management plan. During that year and again in 1956, cuttings were made to take out the mature oak and to release the pine understory. Two harvest cuttings in the past five years removed 40 thousand board feet of sawlogs, fenceposts and fuelwood. As AFA members observed, the pines are now growing fast.

Bruce G. Buell, chairman of the Wisconsin Forest Industries and Chief Forester of the Marathon Corporation, welcomed the guests. Guest speaker was Bernard L. Orell, vice president, Weyerhaeuser Sales Company and an honorary vice president of AFA, who said that the industry Tree Farm Program inaugurated some 20 years ago is contributing to the stability of woodland management on woodlands and especially small woodlands.

When first inaugurated, some said that the program was mere window dressing, Mr. Orell said, but today some 44 million acres of woodlands have been certified as Tree Farms in 45 states. "Tree Farming has caught hold of the public mind," the speaker said. "It has shown that trees must be grown and used and that mere protection is not enough. It has pointed out the difference between preservation and use; but at the same time it is also compatible with other values including water, wildlife, recreation, hunting and fishing. And most waters, Mr. Orell added, are forest waters.

"We hope we are helping to establish a climate favorable for the development of private land," Mr. Orell continued. "Owners of small acreages need to be encouraged in this and we believe the Tree Farm Program is helping to do that. Twenty-five years ago the individual tree in the woods had little or no value. Now, it has a dollar value and the small owner can make a profit on what he owns as well as manage it intelligently for the future."

Wisconsin industry leaders said

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Mr. and Mrs. Edward P. Stamm

Stamm—the Snag Slasher

CROWN-ZELLERBACH Corporation paid high tribute to Edward P. Stamm, retiring vice president of C-Z Northwest Timber Operations, by renaming the 80,000 acre Columbia Tree Farm in his honor.

Mr. Stamm is retiring after 32 years of service, during which he was instrumental in improving C-Z timber management practices. Although trained as a logging engineer, he believed firmly that forest industries must raise their own timber to stay in business. As he ran logging camps, he also counted trees, checked their growth rates and kept an eye on the cutovers.

He promoted tree planting on cut-over lands, and convinced tree farmers that their plantings needed attention. Mr. Stamm championed snag cutting on tree farms because of the fire hazard, and had to persuade timber operators that it paid them to pull snags. The *Oregon Journal* nicknamed him "snag-slashing Stamm."

The Grand Ballroom of the Loraine Hotel was scene of formal sessions of AFA's Timber Utilization Conference

82nd Annual Meeting

AFA Board Lauds California Land Ownership Report

ANOTHER milestone in accomplishment in the history of The American Forestry Association was marked up at Madison, Wisconsin, with unanimous endorsement by the board of the pilot study "California Lands—Ownership, Use and Management." This constitutes the biggest stride forward yet in the activation of Section 1 of AFA's Program for American Forestry.

After studying the first draft of the report at home, board members heard reports at Madison by DeWitt Nelson, chairman of AFA's landownership committee, and Dr. S. T. Dana, director of the study. The board then expressed its appreciation by passing a resolution in which it called the study "masterful and distinguished" and a model that other states may well emulate. Dr. Dana and Prof. Myron Krueger, Dr. Dana's right hand man on the task force, were singled out for special praise by the board.

The board further recommended that the study be published at the earliest possible date. Nutrilite Foundation which underwrote the California study, is also providing $10,000 for publication of the report. President Don P. Johnston named a publications committee consisting of Dr. Dana, Lloyd Partain of the Curtis Publishing Company, and James B. Craig, editor, *American Forests*. In addition to this publication, Dr. Dana will write an analysis of the whole report to appear in an early issue of *American Forests*.

With the California study cleared, the board next considered activation of the Congressional phase of Section 1 of AFA's program. Whether the association should tie in with the ownership bill (S. 2579) introduced by Senator Long of Louisiana, was

All Annual Meeting
Photos by Dean Tvedt,
Wisconsin Conservation Department

discussed at some length. Some board members said they read into this bill pre-conceived ideas of disposal of federal lands, and especially national forest lands. Why were national parks and similar areas excluded from the Long Bill, board members asked? They are no more sacrosanct than national forest lands, and when considered in terms of service to people probably not so much so. Other questionable features of this bill in the board's judgment were creation of a national commission with no opportunity to review which was termed "undemocratic." One member summed up the thinking of many directors when he said, "I have a feeling this bill is a gun pointed at the head of the Forest Service and I don't like it."

President Johnston appointed a committee consisting of G. L. Paret, southern regional vice president, Dr. Dana, and DeWitt Nelson, to study the matter further. While this committee had not made an official statement, it came to two main conclusions. They are: 1) The staff of AFA, with such competent help as is necessary, should write its own ownership bill and continue as previously to paddle its own canoe; 2) On the basis of the California study, it appears probable that Section 1 of the Program for American Forestry should be revised and broadened and the scope of future studies greatly expanded. The long and the short of it is, that the California study has shown that this ownership-management problem is a much bigger package than was previously anticipated.

The board further recommended that two new studies be started at the earliest possible date. At this time, interest has been expressed by various groups and organizations in New York, Minnesota, Wisconsin, Virginia, and North Carolina.

A second major highlight in the opinion of officers and staff members was the very fine impression Secretary of Interior Seaton made on the membership (See the Secretary's address on page 6). One member said, "This man impresses me as the most conservation-minded secretary within my memory." He has been a member for almost 50 years. For some time now, AFA leaders have felt the necessity for solidifying the association's ties with the Interior Department and it is believed the Madison meeting was a good step forward in this respect. Also, in a recent review of endorsements of AFA's land ownership studies it was revealed that only one federal agency, the Bureau of Land Management, had given the proposed studies unqualified endorsement.

CALIFORNIA REPORT

By DE WITT NELSON

THE first phase of AFA's Land Ownership Study, an analysis of land ownership in California, is nearing completion. This comprehensive study, now being prepared for publication, will, we believe, be of tremendous importance in helping to solve land management problems of California and set a pattern for similar studies in other states.

Need for such study *conceived* at Higgins Lake Conference in 1953 and incorporated as a recommendation to the U. S. Congress as a part of AFA's program developed by its *Forest Congress* in November 1953.

Later AFA *created* its own committee for the purpose of *initiating* studies in 3 sample states, having widely differing historical backgrounds in land matters such as one in the West, one in the Lake States and one in the South.

This committee was *chairmanned* by our old friend *Bill Greeley* with the following membership representing both geographical and *interest points* of view: George Drake, Jay Price, Carl Shoemaker, Walter Myers, Otto Wolff, Hal Wilm, Lloyd Partain, myself. On Col. Greeley's death I accepted the chairmanship.

While Col. Greeley was still chairman, the *committee* probably took its most *important action*. They successfully enlisted *Dr. Samuel T. Dana's* services for making these studies and reports.

It costs money to tackle a job of this kind. We were fortunate. Mr. Carl F. Rehnborg, President of the Nutrilite Products, Inc., and President of the Nutrilite Foundation became interested in the project and made a $15,000 grant for conducting the study.

Prof. Myron Krueger, emeritus forester from the University of California, was employed to work with Dr. Dana on this project.

In the report Dr. Dana has presented the facts, discussed the problems and makes one firm recommendation. Categorical solutions to the complex interrelated problems were found to be neither possible or desirable. They are, however, presented frequently in the form of questions with implied answers.

Since July of this year nearly 200 copies of the "*Tentative Draft*" of the report titled "*Wildland Ownership in California, History, Present Patterns, and Problems*" have been distributed for review and comment.

Dr. Dana is now putting the report into final form for publication.

The title has been changed to "*California Lands—Ownership, Use and Management.*" The Format will include: 1. Highlights of the report; 2. Foreword; 3. Text; 4. Summary; 5. Bibliography; 6. Chronological History of Selected F & S land laws; 7. Index.

Again we are fortunate for the Rehnborg Foundation has promised to underwrite its publication in book form. It will be available for general distribution at a reasonable price.

"No More Land"

Quoting from Dr. Dana's Report:

"California's zooming population will soon top that of any other state—with no end in sight.

"To meet the needs of its people for living room, food, water, raw materials, and recreation it has 100 million acres of land—a fifth barren and desert, only a sixth suitable for cultivation.

"Since the area is fixed, production can be increased only by more intensive management.

"Full use of information already available, continuous study to find still more effective methods of management and widespread application of the findings are urgent needs.

"Progress will be facilitated by adjustment in the present, often illogical, pattern of land ownership.

"Combined and coordinated efforts by state and federal agencies, private landowners, and the general public are essential for the development of sound policies, the conduct of effective programs of study, and the translation of knowledge into practice.

"The most promising device for obtaining unified action is a Natural Resources Council, created by the Legislature, and consisting of representatives of public agencies, various classes of landowners, and the citizenry of the state.

"Prompt action is imperative if production is to keep pace with population—if future Californians are not only to live, but to live well."

People: "In a century, California has become the second most populous state in the union. In a few years it will be at the top. Today, birth and immigration bring it a new resident every 55 seconds. No limit to the increase is yet in sight.

"California's people are not only numerous—they are industrious and productive. Among the states in the nation California is first in cash farm income—second in the production of lumber—third (and most diversified) in value of mineral production. In the eight years 1947 to 1955 its gain in manufacturing employment was 13 per cent greater than in New York, Pennsylvania, Ohio, Indiana, Michigan, Illinois, and Texas combined."

Land: "Wherever people live, whatever they do, they are inescapably dependent on natural resources —land, water, and their products. California's size (101,314,000 acres) is second only to Texas. This is a vast area. It is also a fixed area. Within limits, however, its yield of food and services can be increased or decreased.

"These 100 million acres vary widely in character. The chief value of more than one-third is for forest and watershed purposes. About a fifth is barren and desert land. Only a sixth is suitable for cultivation. Scenic and recreational resources—beaches, forests, lakes, mountains, and wildlife — are outstanding. Water is abundant — its distribution, seasonally and geographically, constitutes the problem. The solution requires engineering, economic and political adjustments of major magnitude."

Ownership: "When California entered the Union, title to its entire land area was vested in the United States with the exception of some 8,850,000 acres in Spanish and Mexican grants. Congress has since disposed of 46,500,000 acres in grants to the state and to railroad corporations and by sales and grants to individuals. The state and railroads in turn disposed of much of the area granted them.

Mr. DeWitt Nelson, director of Calif. Department of Natural Resources, presented report on Land Ownership Study

"Since 1890, when three national parks were established in California, reservation and withdrawal of public lands from entry have become increasingly characteristic of federal land policy. The state still owns nearly a million acres of school-grant lands. Both federal and state governments have acquired limited amounts of land by purchase and exchange.

"Today, California lands are almost equally divided between public and private ownership. Some 47 million acres are in federal ownership, some two million acres in state ownership, and somewhat more than 51 million acres in private ownership. Unreserved public domain (including grazing districts), national forests, and military installations comprise the bulk of the area in federal ownership. State beaches and parks, school-grant lands, and tax-deeded lands are the major forms of state ownership. Of the privately owned land nearly 38 million acres are in farm and ranch ownership and about 6.5 million acres in commercial forest land not in farms."

Management: "Exploitation characterized the early use of California's lands. Natural resources—soil, water, timber, forage, wildlife, and minerals were thought inexhaustible. So, why be thrifty in their use?

"Changes in attitude and practices first appeared in agriculture. Production of irrigated crops led to more intensive management. The upsurge of the conservation movement in the early 1900's led to the planned, although at first not intensive, management of the resources in national forests. Improved management of the resources in national parks, wildlife refuges, and grazing districts followed.

"State acquisition of parks, wildlife areas, and state forests resulted in placing them under management. The state also enacted legislation aimed at promoting the conservation of oil and gas resources in private ownership and the improved management of private timberlands.

"A conspicuous recent change in the situation has been the new attitude toward management evidenced by many private owners (particularly the larger owners) of forest and range resources. The growing demand for these resources, increased values, and improved technologies of production and utilization have made management profitable."

Problem: "California faces an inescapable problem which is rapidly becoming more acute. How can its limited natural resources meet the needs of a sky-rocketing population? This one central problem involves innumerable inter-related problems.

"Lands outside of farms yield a wide variety of products and services. Of these, water is universally given top priority. But ample timber, forage, wildlife, and opportunities for recreation, including the preservation of some unspoiled wilderness,

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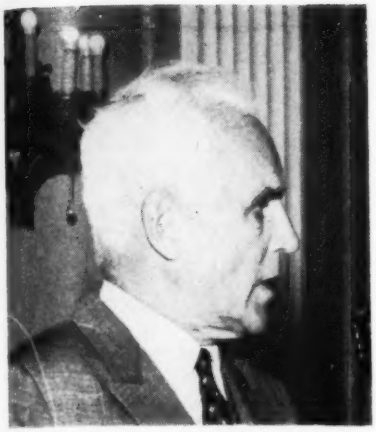

AFA Vice President Dr. Wilson Compton reported AFA's programs and progress

PROGRAM FOR AMERICAN FORESTRY

By WILSON COMPTON

FROM its earliest beginnings the resources of our forests have helped mightily to shape the development of our nation. They have provided many of the useful tools of progress in agriculture, industry and commerce. They have spearheaded much of the western migration which, until this century, was a decisive factor in our national life. They have written some of the most important chapters of American history. They can continue to do so. That is the principal reason that we are here.

When we speak of forestry in America we are speaking, in terms of acres, of the greatest single productive use of its land. We are speaking too of its most important *renewable* natural resource, the source of some of its mightiest industries, a conservator of soil, water and wildlife, and a contributor, in ways without number, to the health, recreation and welfare of its people. It is in these terms that we interest ourselves and seek to interest others, in the conservation, use and renewal of our forest resources. These are the objectives of our "Program for American Forestry." . . .

Our appropriate immediate goals are well identified in the "Program for American Forestry" initiated by this association at its conference at Higgins Lake, Michigan, in the summer of 1953, later after wide public discussion, vehemently approved by the American Forest Congress; and in 1954 overwhelmingly adopted by referendum vote of the members of the association. These are the three basic goals of the program on which the association has been at work since that time: 1. Establishment, nationwide, of the essentials of forest protection; 2. General improvement of the national timber crop in volume, size and quality sufficient to eradicate all important timber deficits and to establish a reasonable reserve of standing timber; 3. A "maximum of economic and social services from our forests" based on the principle of multiple use.

I will discuss these goals briefly under the five captions of the program itself:

I. *Forest Land Ownership*

Our rapidly expanding population upon a fixed land base creates pressures such as conflicts between flood control and agriculture over the inundation of fertile lands; resistance by wood-using industries to commandeering of productive timber lands for defense purposes; concern of wildlife conservationists over military withdrawals of public lands; and controversy between those who think that too much of the nation's productive forest land already is in public control and others who assert, for example, that more areas should be acquired by the public for migratory waterfowl protection and recreation.

Issues such as these call for thorough study of forest ownership and occupancy and the formulation of basic policies for guidance of public action. Such a study under the auspices of the association has been initiated in California through the generosity of the Nutrilite Foundation. It has brought a masterly result which will be reviewed in the program of this conference.

II. *Forest Land Management*

The initial step to management of forest land is protection from fire, insects and disease.

Adequate fire prevention long has been a major goal of The American Forestry Association. Thirty years ago the association launched the "Dixie Crusaders" to enlighten public opinion regarding the evil of forest burning. Substantial progress in fire control in the South dates largely from this three-year crusade. The menace of uncontrolled fire was lessened materially in many areas, but sore spots remained in which willful burning defied all prevention efforts. This threat to timber production in the South recently received the combined attention of a number of organized forestry interests, including The American Forestry Association. Last year an intensive prevention campaign was initiated with a Southern Forest Fire and Woods Arson Conference in New Orleans. It was spearheaded by this association under the skillful and enthusiastic guidance of Lowell Besley. Some 1,200 public spirited citizens participated in this memorable event. They then organized other conferences by states and local districts. At least 15,000 people have participated in this campaign. The results have been gratifying throughout much of the South.

Less spectacular than fire, but sometimes even more destructive are the depredations of forest insects and the deadly menace of tree diseases. Periodically some epidemic will focus public attention briefly on a specific insect or disease. But sustained intensive prevention effort has been lacking. Public apathy about forest insects and disease losses is reflected in the fact that a National Forest Pest Advisory Committee created in 1951, has been permitted to expire.

The association plans to publish early next spring in *American Forests* a special issue featuring this menace. It seeks to generate public interest sufficient for

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AFA staff member Betty Bryant helped hundreds of members register for the annual meeting at the Loraine Hotel, which served as headquarters for this conference

The Future for Managed F

By C. D. DOSKER

THE subject of my address, "How Does the Future Look for Managed Forests," is a subject not only of importance to the forest products industries, but a subject of vital concern to all the citizenry of our nation. Forests are vital to our national defense.

The last statement is more clearly understood when we realize that on a basis of tonnage consumed it is estimated that wood was second only to steel as a required material in World War II.

Time is rapidly running out for some of the now accepted products of the forest products industries for they have not kept pace with progress in competitive materials.

It is essential that the people of this nation, and its political leaders, realize the importance of wood to our national economy, recognize wood as a basic raw material and our only great renewable resource.

We, in this country, have taken wood and our forests for granted for too many years. Wood is commonplace. How it grows, where it grows have, in general, been of no thought or concern to those who use its products. It is estimated that there are over five thousand items used in our everyday life that are products of our forests — from the lowly clothes pin, the rayon in your cord tire to the very printed page on which news is disseminated — all products of our forests.

It is not enough that we, who are engaged in various phases of this industry, know the facts concerning our timber resources. Every citizen of this nation must know the importance of wood to our way of life.

How do we proceed to bring about this new realization and appreciation of our forests and what they mean?

We must recognize that people see what they are taught to see and think what they are taught to think.

It is essential that we, who know these facts, make every effort to bring about a change in the seeing and thinking habits of the people of this nation in regard to the importance of our forests. We must dispell the notion that our forests are gone—our wood supply depleted. Not only are these forests important to them, but they are extremely important to the generations to come.

To accomplish this change in thinking and seeing habits, it is incumbent upon us to see that the story of wood becomes an essential part of our educational system. We must teach every child to appreciate our forests.

The wood-using industry is going through a period of transition. It is gradually emerging from a non-technical industry, composed of many crafts, into an industry in which a high degree of technical skill and know-how is required.

One has but to observe the increase in the number of professional foresters hired by the wood products industries, as well as other technically-trained people, and he immediately realizes the transition of which I speak.

The story of wood is no longer simply the story of logging, of lumber, of veneer or paper, nor of houses, furniture and toys. True these are the products of the past and current history, and they will be part of history yet unwritten. The true story, however, will be the story of wood as a basic material, or more complete utilization, of chemical products and by-products—a Pandora's box, if you will—for wood is the mother of products and processes yet unborn. . . .

In starting, I would like to say that with or without managed forests there will probably always be a better demand for the upper grades of lumber, in its natural form, than the probable supply. The question is whether or not we will be able to develop the knowledge, through research, to adopt the full product of the forest to the markets which will exist.

The company which I head has been engaged for some 60-odd years in the wood parts business. As such, we are converters of wood into many special shapes and sizes that may be required by industry. Our raw material is principally hardwoods in the form of lumber or veneer. In our business, we perform almost all conceivable machine operations in wood.

Because of the very nature of this business and the people we serve, we are literally on the front lines of the battle to maintain industrial markets for wood. From this position we have observed, over the last decade, the transition that is taking place in the wood-using industries. We have seen the substitution of new materials for wood. We have seen old established markets lost to substitute materials. We have seen the decline in the quality of our principal raw materials, rough lumber and veneer. We have observed the impact that these quality changes have made upon our own utilization figures. In the short span of thirty years, old growth hardwoods have practically disappeared from the market.

We have observed the effects of rising prices and lower yields on lumber markets and have seen the stimulation that it has produced in the switch to substitutes for wood. We have seen and observed the increase in the technological approach to their material problem by many of our customers. We have endeavored to meet technology of the seller of substitute materials by matching their technology with product redesign — for do not ever forget wood is an engineering material.

C. D. Dosker, president, Gamble Bros., lumber manufacturers of Louisville, Ky.

In the light of what I have just said, you can well understand why I sometimes ask myself this question—"How

Forests

Does the Future Look for Managed Forests?"

I do not, however, believe that this question of the future of the managed forests can be easily determined, for I feel that it is an evolutionary problem.

I do feel that the next ten years will have definitely established a pattern, and what that pattern is will depend entirely upon the efforts, energy and good judgment of all of those who are interested in forests and in the forest products industries.

The forest products industry is a complex industry with many facets, involving over-lapping raw material requirements, dissimilar manufacturing and marketing problems. Because of this over-lapping there is an urgent need for a long-range, industry-wide program or plan. This plan needs to be a consolidated and coordinated effort of the entire forest products industries, because it must consider kinds, quantity and quality of raw material. It involves selection for end use of timber at times of felling. It must consider existing markets, potential new markets, and it must think of these in terms of maximum dollar yield per acre of timber. Such a plan or program must consider, above all, increased research—both basic and product.

This plan needs to be a systematic appraisal of the problem of trees as a basic raw material in relation to present and future markets, and people.

There have been many studies of the forest products industries in the past ten years. These contain much information that is basic in character regarding the past, and projecting into the future the needs and requirements of the forest products industries. . . .

The total of this information provides a starting point, from which must be created a plan for action.

To accomplish this objective, some organized group within the industry must assume leadership, and singly, or with other industry groups, bring about concerted action in the development of a long-range program.

I wish to quote from President Truman's letter to Mr. Paley, who headed the Materials Policy Commission. I do this because I think it is germane to our problem. I quote—"I believe the commission should study, together with any other subjects deemed by it to be pertinent, such questions relating to production and materials as: 1) Long range requirements outlook. 2) The long range supply outlook. 3) The prospects and estimated extent of shortages. 4) The consistency and adequacy of existing government policies, plans and programs. 5) The consistency and adequacy of private industry practices."

Those five points are pretty sound points to consider by any group undertaking the problem facing this industry. Point number 5 should read: "The consistency and adequacy of private industry practices and long range planning." So stated, it becomes an objective for this industry.

If we are going to have managed forests, what are we managing them for? How much timber does this country need? If you have an idea of the size of your market, you can pretty well determine what you are going to need.

The U. S. Forest Service has projected the market to the year 2000. By that time, it is estimated that we will be a nation of 275 million people. To satisfy the wood requirements of this nation at that time we will need to be growing timber at the rate of 20 billion cubic feet a year in order to maintain balance between growth and drain. This is a lot of timber.

We currently have an estimated 488 million acres of commercial forest land, so that it would mean an average growth rate of 41 cubic feet per acre per year would be required to maintain balance. This, I believe, can be done in many areas. To achieve this growth rate will mean that commercial forest lands will really have to be managed and not just supervised. . . .

There is also another factor that must be considered, and that is the probability that the demand for wood will bring under forest cover many thousands of acres of marginal land now under agricultural crops. I think this could well follow as soon as the demand is indicated and the fact that timber is a profitable crop has been further demonstrated. If the need develops, the acreage for increasing our forests is available, without sacrificing good agricultural land.

Let us look briefly at this 488 million acres of forest land — who owns them and what they contain. . . .

One hundred and thirty million acres represent publicly owned land. This is 27% of the total forest acreage, which contains much of our old-growth timber and, by and large, can be classified as well managed. This also means that any long range program must include government participation and concurrence.

Next is 62 million four hundred thousand acres held by industry. This is in the hands of either land, timber, lumber, or paper interests, for the most part. This represents 13% of the total, and this land, from the standpoint of man-

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Dr. George A. Garratt, dean of the School of Forestry, Yale University

Small Woodlands and Utilization

By GEORGE A. GARRATT

IT is with the owners of limited timberland acreages and their harvesting and marketing problems that I am chiefly concerned in this discussion. Considering the extent and diversity of these problems and our time limitations, it has seemed desirable to treat the subject in general terms, rather than to discuss specific details and examples of small-woodland utilization problems. If the presentation appears to be flavored by conditions in the Northeast, this may be laid at the door of my somewhat greater familiarity with circumstances in that region than elsewhere. . . .

The outstanding problem in American forestry today is the management of small woodlands, comprising more than half the commercial forest acreage in the country and three-fourths of the forest land in private ownership. Such holdings are important in their extent, and as they affect water and soil conservation, recreation, and wildlife. Moreover, they are the greatest potential timber source for all our forest industries, now increasingly pressed for adequate supplies of wood. While they currently yield substantial amounts of timber, this is but a fraction of the volume these small forest properties could produce under more adequate management. . . .

The woodlots are mostly located east

of the Great Plains. About three-fourths of their number are part of farms, and farm woodlot ownership is usually only an incidental part of farm management. The same general condition prevails among non-farm owners, in that a discouragingly small proportion of such owners are primarily concerned with the timber-growing potential of their woodland. This general absence of interest in forest management, aggravated by generations of destructive cutting practices, has left most small woodland tracts far below their optimum level of productivity. Too many acres are poorly stocked, with immature trees of less desirable species and larger trees of poor form and soundness.

The major problem in small-woodland management today is thus to improve those holdings which are not now even reasonably productive. If such woodlands are to achieve even a moderate share of their full economic possibilities, it is necessary that they be improved in species composition, in degree of stocking, and in age distribution, to secure more trees of valuable kinds and of merchantable size. We need better harvesting practices, application of thinnings and other improvement operations, and planting where necessary to build up the growing stock. Obviously, the profit motive must be given consideration, and this points directly to the associated need for the application of techniques designed for more economic harvesting and processing of the material to be removed, and for the development of more extensive markets capable of absorbing the kind, size, quality, and volume of timber that should be harvested to enhance the future value of the stand. In sum, the major bottle-neck to improved forest practice on most small timbered areas is the lack of adequate markets for the small and low-grade material now growing in abundance, and which must be removed in order to promote better growth in the residual stand . . .

In many sections, small woodland holdings constitute the only source of supply for small but important wood-using plants, while in other areas they are major contributors to the raw material requirements of pulp mills and other large manufacturing units. These woodlands are the backbone of the small-sawmill industry, which they actually tend to spawn by the very nature of their present timber quality and volume. They also contribute importantly to the production of a variety of other primary forest products . . .

However, despite the importance of their woodland products to the primary wood-using industries, the owners of small tracts are often faced with a major problem in disposing of the timber their lands produce. This situation stems chiefly from the generally limited demand for low-grade timber, which may be the major or even the sole component of a tract and which the forward-looking timberland manager seeks to remove to make way for better growing stock and to improve the quality of his future stand.

High-quality wood finds a ready market in practically all sections served by the appropriate industries . . . The dis-

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Dr. Frank H. Kaufert, director, School of Forestry, University of Minnesota

Lake States Forestry

By F. H. KAUFERT

THE century since exploitation of our virgin pine and hardwood forests got seriously underway on the Au Sable, the Chippewa, the St. Croix, and other Lake States' rivers has witnessed a cycle of events. The cycle started with an apparently limitless area and volume of high-quality virgin timber. It was characterized by the rapid growth and almost equally spectacular decline of the lumber industry, by widespread and disastrous forest fires, by the almost complete decimation and liquidation of a fabulous resource by a shortsighted economy, by threats and predictions of timber famine, and finally by the regrowth of the resource and the development of the pulp and paper industry to take the crown once worn by lumber.

In 1957, we are concerned with the expansion of our pulp and paper and other forest products industries and with the possible introduction of new industries to use the surplus timber being grown. We speak of the necessity for growing much more timber of some types and of the large surplus of other species. We recognized the forest products industries along with recreation and mining as the mainstays of our northern Lake States' economy. On the surface, it would appear that we have gone from feast to famine to feast in the period of slightly more than a century.

Superficially, the cycle would appear to have been completed with a happy ending—a flourishing forest-products industry and more timber being grown than we are utilizing. Those concerned with the forest lands and forest-products industries of the Lake States know differently. They know that the majority of our forest lands are today relatively nonproductive, that their full potential is far from being realized, that our forests are long on volume and short on quality, that improvement in productivity of all forest lands is essential if our industries are to maintain their growth and compete with those of the South and West, and that the potential of our forest lands is tremendous but will be realized only as we accomplish the mountainous tasks before us. . . .

Numerous problems must be solved before we can hope to fully meet the challenges of the present situation and take advantage of the opportunities provided by our abundant forest land resource and the industries based on it. In their broadest sense, these challenges and opportunities are:

1. *Increasing growth rate and improving quality.* The existence of a large acreage of denuded and poorly stocked land, of off-site aspen, and of run-down farm woodlands accounts for the Lake States' very low average growth figure of about 1/5 cord per acre per year. We know that well-stocked Lake States' coniferous stands can produce a cord per acre per year. As previously indicated, there is a serious shortage of conifers and high quality hardwoods. Increasing the amount of conifers and high quality hardwoods and the average growth per acre will require continuation and improvement of fire protection by state and federal agencies and the full cooperation of such fine industry sponsored programs as Trees for Tomorrow and Keep Green. It will require intensified forest management on the 40 per cent of Lake States' forest lands in public ownership, the 31 per cent in industrial and small private ownership, and the 29 per cent in farm woodlands. Its accomplishment will be possible only through added planting, increasingly expensive and more difficult planting, to bring denuded and poorly stocked areas back into production and improve quality. It will demand protection not only from fire but from losses by insects and diseases. The ultimate success of these efforts and of the entire Lake States'

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Wisconsin Governor Vernon Thomson (left) uses ax to cut ribbon opening exhibit. AFA Pres. Don P. Johnston (right)

(Left) Leonard Kuehl, Flambeau Paper Co., Col. Totman, Dept. of Defense, Harry Mosebrook, American Pulpwood Assn., R. G. Doerner, Forest Service, study paper exhibit

Wood At Work

Impressive display of forest industries at work in Wisconsin was prepared for AFA meeting by Trees for Tomorrow, Inc., Wisconsin Paper Industries, Northern Hemlock and Hardwood Assoc., and Wisconsin Conservation Dept.

Research chart is examined by U. S. Regional Forester Arthur Greeley (left) and Wisc. State Forester John Beale

Norman Stone, Mosinee Paper Mills Company, previewed forest industries display at Governor's luncheon preceding exhibit

Paul M. Dunn, St. Regis Paper Co. (l.) and H. B. Newland, Kentucky Div. of Forestry, discuss forest management plan

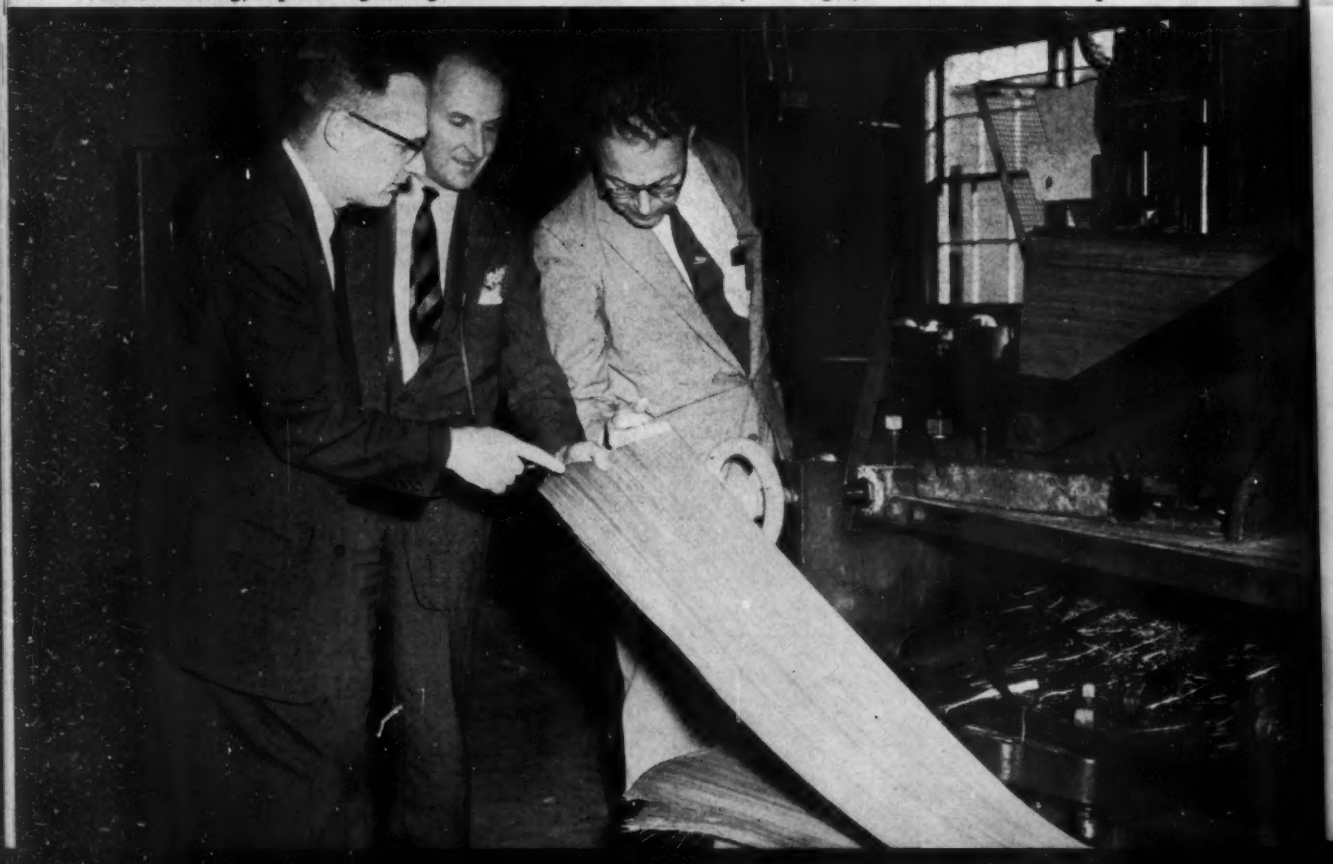
AFA members begin tour of Forest Products Laboratory at Madison

HOUSE OF WOOD MAGIC

AFA members attending the annual meeting had a sneak preview of the future wonders of wood when they toured the U. S. Forest Products Laboratory at Madison. Members were amazed at the variety and extent of projects being conducted at the wood utilization research center. However, even on this three-hour tour, organized by the Laboratory staff, the group only had time to see a portion of the projects underway.

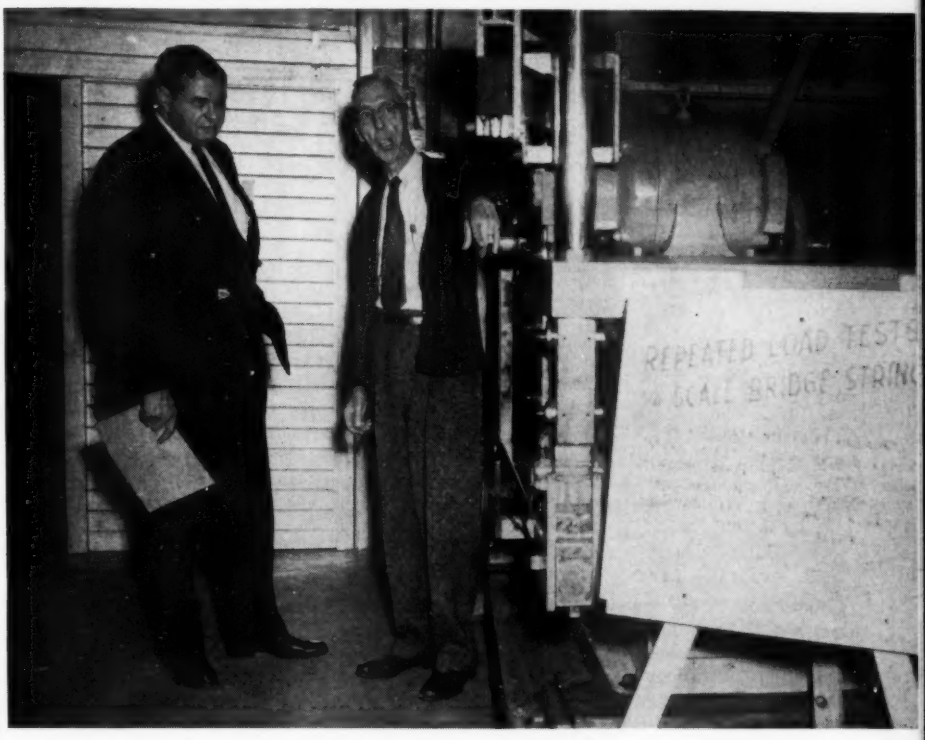
"We consider that forest products research is now approaching maturity," Dr. J. Alfred Hall, director of the Laboratory, told the group, "a stage in which forestry recognizes the necessity for continued research in its products in order to keep them abreast of and in balance with the total field of technology."

Public relations man for the Laboratory, Fred A. Strenge (left) who also served as publicity chairman for the annual meeting, explains log slicing machine to AFA member Henry McKnight, and *New York Times* reporter Bill Blair



National Park Service Director, Conrad Wirth was interested in quality testing by sound waves

U. S. Forest Service Chief Richard E. McArdle listens to explanation of load tests. In this section wood is tested for safety and its economical use as a construction material



Dr. J. Alfred Hall, director of the Forest Products Laboratory, which is maintained to help conserve forest resources by finding ways to use them wisely

AFA members examine chemical extracts from trees. Forests will return maximum values only if they are fully and profitably utilized and managed under sound policies

Edward Stamm recently retired from C-Z as vice president for Northwest Timber Operations

Integrated Utilization at Crown Zellerbach

By E. P. STAMM
Crown Zellerbach Corporation

I am going to tell you about the integrated forest utilization at Crown Zellerbach's northwest timber and manufacturing operations in Oregon and Washington. . . .

In the two states of Oregon and Washington we own and operate more than 650,000 acres of industrial timberland in twelve tree farms certified in the American Tree Farm System. Eleven of these are in the Douglasfir, true-fir, hemlock and spruce forests west of the Cascade Mountains, and one is in the lodgepole pine area of the Cascades. The allowable sustained yield cut on these tree farms is something like half a billion board feet a year. We have six pulp and paper mills in this area, with a combined daily production of 2,800 tons in 400 different types of paper made from kraft, groundwood and two types of sulfite pulping. One veneer mill produces 85 million square feet a year. Two chemical plants, operated in conjunction with pulp mills, produce by-products from waste liquor under a separate chemical products division. In addition, there is a multi-million dollar Central Research Department where 150 scientists are working to improve today's products and utilization and to develop new products for the future.

The chemical products are worthy of separate mention here because they are produced largely from lignin—the half of wood which is ordinarily lost during chemical pulping. A series of seven commercial chemicals called Orzans are made from spray-dried waste liquor at one mill, which uses an ammonia-base sulfite pulping process. These lignin products are used as industrial binders, flocculants, selective dispersants in ore flotation, viscosity reducers in cement slurries, emulsion stabilizers and as tanning extract extenders in the leather industry. They are also used to increase transverse strength of softboards and in agricultural sprays to furnish iron for plants and trees in a product called Greenz-26. A colorless liquid called dimethyl-sulphide is produced from waste kraft liquor. Formerly a high-priced specialty chemical, we now produce it in the raw material price range as an industrial intermediate chemical used by agricultural, petroleum, plastics, rubber, gas and solvent industries.

A rather sizable, steady and perpetual flow of pulpwood is obviously necessary to sustain our manufacturing plants, which consume ¾ billion board feet per year. Wood must be delivered in the right place at the right time, in the right amounts, in the right species and grades. This is the job of our Timber Department. Most of the supply is produced from company tree farms, but some also comes from outside sources . . .

Many of our old-growth stands are overmature. Annual losses from insects, disease and windthrow exceed the annual growth, so that the longer these stands are left unmanaged the greater the resource loss will be. Our old-growth stands are therefore classified by ground and aerial surveys into three general types: (1) thrifty, where growth exceeds loss; (2) static, where growth and mortality are in balance; and (3) deteriorating, where losses exceed growth. . . . Logging plan priorities are set up so that stands in the worst condition will be harvested first to reduce the loss of wood to a minimum. The harvest operation in such stands begins with prelogging salvage of all merchantable dead and down trees. The next step is to remove all small green trees, usually up to 20 inches in diameter in mixed size tree stands. This is a separate operation called prelogging that normally removes 20% to 30% of the total stand volume. The final step is to clear cut the large trees. This three-step harvest recovers about 10% more usable wood per acre by reducing breakage of small trees and dead salvage that otherwise occurs in falling and yarding of large trees. It also separates the small log and large log operations so that most efficient equipment can be used in each case. In all of these operations, felled trees are carefully marked for the bucking lengths which will give the largest recovery of high grade logs. This insures that each portion of the tree is put to its highest value use.

Some of our timberland was acquired as cut-over land after preceding owners had logged all material economically merchantable and accessible at the time of cutting. Since that time log value and grade changes, reflecting greater demand, have made it possible to re-log many of these areas to recover both pulpwood and higher grade logs. In this way we have utilized many millions of board feet which otherwise would have been lost.

Another kind of salvage logging is perhaps best explained by example. On our Clatsop Tree Farm in the northwest corner of Oregon there is a twenty-five thousand acre block of 25 year old hemlock and spruce which resulted from natural seeding and planting following company logging. Between this second-growth block and the high fire hazard area of the Tillamook and Wolf Creek burns there was a belt of fire-killed snags on other ownerships. Ten years ago we bought some 8,000 acres of this snag land, most of which had already been logged through six or seven times. We felled the snags to create a snag-free corridor from one to three miles wide and nine miles long between the burn and the second-growth as a fire protection measure. This strip is part of a major crescent-shaped corridor which runs from the ocean for 35 miles northeast of the Columbia River, forming a major firebreak around the corporation's 185,000 acre Clatsop Tree Farm. All merchantable material from these dead snags was recovered and went to pulp, plywood and sawmills depending on species and grade. . . .

We have been carrying out large scale thinning operations in second-growth stands for about ten years. Our Columbia Tree Farm of 70,000 acres, for example, is entirely a second-growth forest ranging up to 70 year old stands of Douglas-

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A Lake States Sawmill Meets Utilization Problems

By A. E. SWANKE
Tigerton Lumber Company

OUR company has been in business in Tigerton, Wisconsin, since 1885. This represents seventy two years of operation in one location, which I believe, constitutes something of a record in the Lakes States. The philosophy of our company during the major portion of this time was in no way different from practically any other sawmill operation in our area. In other words, we operated on the theory of clear cutting in our woods operations. We thought the timber supply was inexhaustible. Later we realized that we could, and soon would exhaust our available supply of timber, so, we merely shifted over to a program of liquidation following the policy of cut out and get out, little realizing that nature's reproduction forces were at work practically from the time the first trees were being cut. We can't lay claim to any extraordinary powers of vision or sharp judgment in this respect. On the contrary it took quite some time for the fact to register that we had a high quality and very valuable crop of young timber growing up around us. The fact is, our company had been selling off so called "cut over" lands for nominal sums for many years. On many occasions, only a short time later we had logs sold back to us, and we paid the new owner many times the original price he paid us for the land. You can see the facts became pretty evident before we finally woke up. In the early 1940's we re-appraised all of the remaining timber land that we owned, and found that our second growth timber far outweighed our virgin stands in value. It was at this point that we knew we were faced with the necessity of making a decision, whether to proceed on a liquidation basis or to strike off on a new more or less unproved program of forest management.

Two alternatives were open to us: (1) to continue on a liquidation course and realize the largest possible immediate profit for the company, or, (2) to perpetuate our company by developing a timber supply adequate to sustain our operation on a profitable basis.

We gave consideration to the following factors in arriving at our decision:

1. By perpetuating our operation a major economic advantage was possible in spreading profits over a long period of time as contrasted to a high return over a short period liquidation.

2. Over the years since our origin we had developed an organization, with what we felt, was a good reputation and as a matter of family pride we felt strongly that the business should continue. This may have been a sentimental factor, but it did enter into our consideration.

3. We felt a strong responsibility to the community, which was in a large measure dependent economically upon the continuation of our company operation. Many of our people had worked for the company for several generations, and we felt a responsibility to these people almost equal to that of our own family.

4. Far sighted policies of the state of Wisconsin had developed a tax program which was favorable to holding and maintaining forest properties.

5. The residual timber supply in our working area had not been deteriorated by continuous burning and exceptionally destructive cutting because of the early development of this area as an agricultural community. We felt this would provide the foundation of a timber supply that would make a sustained yield operation practical. The quality, abundance, and distribution of the surrounding timber made this approach attractive.

6. The location of our operation with respect to markets and transportation facilities was very favorable.

7. The woods labor situation appeared to be particularly favorable because the community, as I have indicated, was supported by a strong agricultural economy. This made part-time logging activities practical on the part of the farmers. This also fitted well with our mill operations.

8. A well developed and maintained network of roads within our working area made the purchase of small quantities of timber practical.

9. We recognized a growing interest by the general public in the wise use and proper management of our timber lands and other natural resources which would provide a favorable public attitude toward an operation of this nature. This was important because public cooperation would be necessary to insure the success of such a program.

For these reasons we decided upon a company policy of sustained operation consistent with the means which we had available. After arriving at this decision it was necessary for us to develop specific plans of operation, and put them to work. To accomplish this, several things had to be pointedly kept in sight.

1. The program had to be feasible economically. Ours was a relatively small company and it was not possible to indulge in the luxury of such a program strictly for public relations purposes. Whatever we did had to pay off.

2. This program which we embarked upon had to be financed out of company reserves immediately available. It was not possible nor desirable for us to inflate our capital structure to accomplish these ends. With these things in mind, we developed the following plan which has been the basis of our operation to date.

The first part of our program called for the company purchase and development of a base or core of company owned timber land which would serve

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Mr. A. E. Swanke of the Tigerton Lumber Company, Tigerton, Wisconsin

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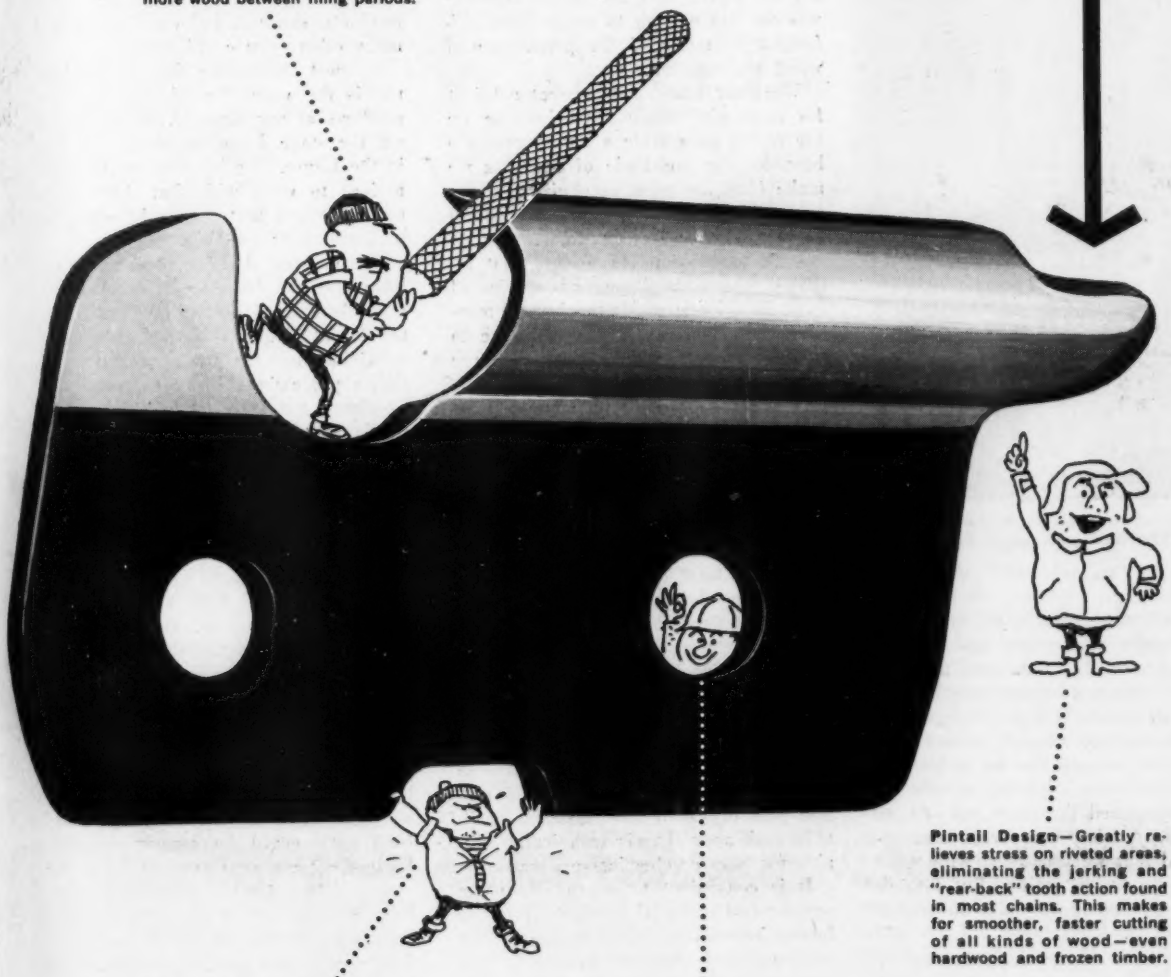
THE TOOTH TELLS THE TALE



Pintail Design—Greatly relieves stress on riveted areas, eliminating the jerking and "rear-back" tooth action found in most chains. This makes for smoother, faster cutting of all kinds of wood—even hardwood and frozen timber.

Less Chain Stretch...Longer Life—Quality steel, precision rivet holes and increased rivet bearing area reduce chain stretch...provide Pintail with up to 50 per cent longer life than ordinary chain.

Precision Rivet Holes—Holes are shaved twice, then burnished, insuring perfect mating of rivet and hole. This makes for better oil retention and prevents dirt and abrasives from entering hole and damaging chain.

Better Timber Management

By ROBERT J. SEIDL

Robert J. Seidl, director, Central Research Laboratory, Simpson Timber Co.

IT is no exaggeration to say arbitrarily that pulp and paper and related fiber-using industries have been a strong and vital factor toward achieving our objectives of better forest management. As a proponent of research in this field, it would be pleasant for me to be able to say to foresters that we in this industry recognized the need and saw an opportunity to improve forest management, and that we proceeded with vigor to remedy a bad situation. But I think we all know that is not quite the way it happened . . .

During most of the long history of paper-making, good forest management was certainly not the motivating force and it was, in fact, the least of many problems. Yet during our brief lives, it has become one of the most important and we might even say that, after all these years, it has rather suddenly become the dominant one. The pressures that developed for raw material gave the necessary impetus to research to try to use woods of all kinds in addition to the few preferred species upon which the pulp industry was built.

It is understandable that the paper and lumber industries could not have integrated their interests in raw material earlier in history. Their objectives were too divergent, the species required were different, the technology and markets too far apart, and the paper industry was not big enough to make much difference in terms of the percentage of wood consumption.

We favor forest management not just for academic exercise, but because we are trying to provide a strong resource base for the multitude of products we make from the trees, recognizing at the same time such important by-products as recreation and clean water.

It is too obvious to discuss that although the size, shape and species of wood in a forest under the best of management conditions may permit one to produce lumber or veneer, a very large portion of the wood substance in the forest will not be suitable for any one product whatever it might be. Simply stated, this is the reason for integrated use or the making of multiple products.

The reason the fiber-using industries play such an important part in management and utilization is because they can consume almost any wood in a subdivided form, such as a chip. In the face of present day technology, there really is no such thing as a useless piece of wood or a weed tree. As we plan the future of forest management in relation to utilization, we must capitalize in every way on this fact. In addition to the wood we presently use, we have in our country perhaps one hundred million tons of woody raw material available each year that is technically suitable for fiber or chemical products.

It is convenient to group all of the present and potential products from the forests into natural wood products, fiber products, and chemical products. The first category is by far the largest consumer of wood, but it is very demanding in its requirements of size, shape, and species of tree. Natural wood products have rather obvious limits on the raw material from which they can be made. Chemical products loom in the future as very important ones in the use of large quantities of low-grade wood substance. Fiber products lie in between these two with a large-scale present use. Considering the nature of the traditional wood products, such as lumber, and the kind of logs required, it is apparent that the fiber industries must carry an increasing burden of the forest management load. By fiber industries, I mean any that use wood in its subdivided form, such as paper, pulp, hardboard, softboard, particle board, core fiber products, sawdust, soil conditioners and many others you could name.

A most impressive fact about fiber use is the versatility of processes and products at our disposal. Research has set the stage for even more versatility in the future. We have so many combinations to work with that there is almost no wood that cannot be converted to useful fiber products.

One problem that has received far too little attention from the research standpoint is that of getting low-grade materials out of the woods and chipped or subdivided into the kind of raw material that a processing plant could use. The problems are both technical and economic and involve a study of methods for barking, chipping, screening, chip cleaning and transportation to determine how much such material could cost in large supply at a given location. The purpose of this is to attempt to tap the large tonnage of wood substances other than the material now brought in for wood products or pulp. Once these factors have been established, other research efforts will permit selection of the best combination of answers to make the use of these woody materials possible.

It is too easy to oversimplify the problems of making pulp from miscellaneous wood residues, as the pulps prepared from each could be grossly different. While we are always groping for a general answer to the use of wood residues, it is evident that as the research gets more complicated, we will be less likely than ever to find general answers to the problem. Each one will have to be considered separately in relation to the type and amount of raw material, markets, plant sites and other factors.

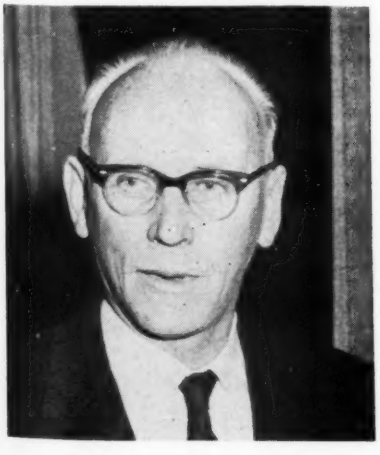
We could analyze the contribution of pulp and paper to management by geographic areas, by species groups, or in terms of softwood and hardwood, and it may be appropriate to do some of each.

In the big tree areas, the fiber industries make an obvious contribution by consuming slabs, edges, residues, thin-

Through Pulp and Paper Research

nings and some material that would never leave the woods if pulp were not a product. The research problems are mostly those of using the native species, developing their use in appropriate products, trying to use little-used species that would be available, and planning for changes that will occur as second growth becomes more plentiful. In this respect, it is important that the future of fiber products in relation to lumber be watched closely to serve as a guide in forest management. We may expect to see more examples of the substitution of fiber products for lumber products. If these can occur in just a few years due to research and technology, how can we be sure it is wise to wait through a very long cycle for saw logs, and bear the heavy burden over these years, when some new technology may make the final log less desirable than it is now? This is, of course, the idea often spoken of in connection with the plan of growing fiber as such, rather than saw logs, which could greatly modify our forestry plans. While I do not advocate this as a generality, a fair degree of it is already occurring in many localities where pulp production predominates. It is ironical that in some areas the volume of woody raw material left in the woods or not utilized at all is staggering, and these areas are badly in need of fiber-consuming mills, while in other areas, the production plants are crying for fiber and find it necessary to manage the forests almost exclusively for fibers.

Mr. E. L. Lawson, Division of Forestry of Minnesota, served as panel moderator



It seems to me that the fiber industries make the greatest contribution to forestry in the broad sense when they are part of an integrated operation that uses residues from forests and factories as one phase of the making of other forest products. I might say it is an objective of our company research to make the best possible use of the present and future raw materials in wood products, fiber products, or chemical products for which each class of material is best suited, of course making the necessary compromises to realism. It is probably necessary in some areas of heavy pulp production to practice single product forestry, but I do believe this falls just a little short of the ideal in the responsibility for providing other forest products to the public. People who know me won't minimize my enthusiasm for fiber products but, on the other hand, I do not like to think that natural wood products are dropping out of our culture just because their per capita consumption has been on the downgrade for some years.

Research on softwoods for pulp and paper has had as its primary objective the use of other species and their adaptation to certain processes. Their long fiber was already welcome when means were found for liberating fibers from the wood. Splendid examples of landmarks in research on softwood species, excluding the actual basic process discoveries, were the pulping of Southern pine and Douglasfir and the use of the groundwood process on Southern pine.

In the management of lands for a given species, it is sometimes necessary to replant a fairly large area to make it productive again. This sometimes means planting on both good and poor sites and at various elevations that may be less than desirable for the species, with resultant poor survival. As technical studies in market development provide more outlets for other wood species, it may be preferable to plant only the species best suited for rapid growth on the specific site. This means we may ask the technologists to provide uses for species that grow rapidly, rather than ask forestry experts to grow trees rapidly in areas where nature is against them.

In research studies on hardwood use, the problem was in some ways much more difficult. Early research on hard-

Panel Moderator G. S. McIntire, Forestry Division, Michigan Conservation Dept.

wood pulp was done under an aura of discouragement, due to the short length of fiber, low strength of pulps, and weed species stature of the woods. However, anyone who is interested knows the tremendous change that research and technology have made in very recent years, and what wonderful promise it holds in the future for both the paper maker and the forester. As a result of research on hardwoods, some of these woods are now very much in demand for a wide variety of products. By the proper choice of process and product, we can use hardwoods that are light or dark in color, low or high in density, and that can be pulped separately or as a woods-run mixture. They are suitable for use as a component in many papers, from the softest absorbent tissue to the stiffest of container boards. In the face of modern technology, it is time that the forester generate more respect for his problem child, the low-grade hardwood log. It is no longer really necessary to plead with the pulp producer to use hardwood and thereby permit better forest management. Research has shown that hardwood pulp can be a distinct asset in many products, quite independent of any forestry conditions, and when this is true, it should be exploited to the limit. It is not enough to promote hardwood use on the basis of forestry objectives alone.

The use of hardwood species for pulp and fiber products is an outstanding ex-

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No forest can be managed under sound principles without roads

Helping the Public to Get Its Money's Worth

By SENATOR WARREN G. MAGNUSON

RIPENING timber—like time—waits for no man. Nor will it wait for access roads to be constructed so that marketing can be facilitated.

As a result there has been a whopping loss to the U. S. Treasury, the nation's taxpayers and to the timber reservoir we need for a strong America. When private interests build those roads, the price on the public's timber is drastically slashed. Additionally, since only the larger timber concerns can enter bids when access road construction is involved, the price shrivels further because of a lack of competition. This has been costly and threatens to worsen unless Congress corrects it.

An overripe tree can go downhill fast. It can fall and decay. It can become a source for insect attack or a fire hazard, threatening entire stands. It can contain only a "salvage" value instead of bringing top price. Unless access roads are built to it, the overripe tree ultimately can have no value at all.

We think of our forests either as parks or else as commercial or production forests. However, no "commercial" forest area is truly one until it has roads. No forest can be managed for sound forestry practices until it has roads. A commercial forest without roads is a wilderness where nature in its inexorable way grows and then destroys the wood we must have.

Assistant Forest Service Chief Ed Cliff figured the loss on our national forests alone has been up to $20,000,000 in recent years. The loss in terms of finished lumber is over $100,000,000 a year. He said this loss will continue until the "major part of the timber access road system has been installed."

Cliff was appearing before House Public Works Committee testifying on the national highway measure when he made those observations.

His meaning is made more clear when we note how far behind the allowable annual cut we've fallen in recent years.

Although a harvest of 9,018,000,000 board feet was allowable in national forest areas in 1956, only 6,907,041,000 was harvested. Then in 1957, the cut should have totalled 9,892,000,000 board feet but reached only 6,973,000,000 board feet. Due to new inventories, the allowable cut climbed 10% last year but the actual cut rose only 1%. These "lag-behind-allowable-cut" figures have been pronounced for years.

Statistics like those quoted will figure prominently in hearings planned this fall by my colleague, Senator Albert Gore of Tennessee. He heads the Subcommittee on Public Roads in Senate Public Works Committee. Senator Gore is taking his subcommittee, which includes Senator Richard L. Neuberger of Oregon, to the West Coast this fall to look into this situation.

As a member of Senate Appropriations Committee, I helped get this Public Works Committee study underway. Senator Henry Jackson, Senator Wayne Morse, and I expect to take part when the Gore committee holds hearings in Portland, Oregon, and Seattle, Washington, this fall.

Access road needs are particularly acute in our western states. Much of the national forest timber stands are located there. Likewise, much of the timber which has not been harvested when ready is situated there. There the timber access road program has lagged pitifully.

Magnitude of the access road building program facing us can be seen when officials like Ed Cliff testify:

"We now have 50,000 miles of timber access roads, about half of

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Many national forest timber stands are located in the western states, where the need for access roads is acute. However, the program has lagged

Reading about RESOURCES

By MONROE BUSH

Management Is Not Enough...

IN the September issue of *American Forests* an article was published by Dr. Marion Clawson, a distinguished staff member of Resources for the Future, Inc., in which he questioned the relevancy of The American Forestry Association's present attention to the matter of federal land ownership—especially as it pertains to forest areas. This ownership issue, Dr. Clawson observed, is "of secondary importance. In my view," he continued, "the real problem of public forest lands is not, how much, but how to get the best possible management."

Commenting upon the article, the editor wrote, "Ownership and management are one and inseparable, including efficiency in management, and you cannot consider either management or ownership in a vacuum."

In my judgment, the editor's statement is so obviously true as to need no defense or explanation. But it is a truth like justice, to which we erring mortals have endless difficulty accommodating ourselves.

I have just read Dr. Clawson's new book, co-authored with Dr. Burnell Held (*The Federal Lands, Their Use and Management,* Johns Hopkins Press, 1957, $8.50), and find their dismissal of this ownership problem a keen disappointment in a book which is otherwise a major contribution. The authors go to great lengths to maintain the scholar's impartiality, explicitly declaring in the Foreword that "there is [no] desire to promote any particular program"—and they do better than most men in adherring to such objective impartiality in a subject area where both obviously have deep feelings. However, the dismissal of the ownership problem is, in itself, a firm commitment to a "particular program," the program of the *status quo* in federal land ownership.

"One assumption is basic to the entire study," they write: "that for an indefinite period into the future the acreage of land in federal ownership will show no major change from the present . . . This assumption rests on the belief that the basic policy issue as to the role of federal lands in our national economy and society has been settled, and that the people of the United States will not agree to major additions to federal land holdings nor to major disposition of them."

The readers are asked to accept this *status quo* because "the people" appear to accept it; to "go along," so to speak, for the expedient reason that there seems to be little likelihood of change in the ownership pattern. Yet for 385 pages of text the authors argue, directly or indirectly, for the need for new concepts in federal land management, and for more efficient procedures, without offering the least shred of evidence that the citizenry at large is dissatisfied with present management procedures and concepts.

I would agree with what I think is their implicit inference, that the average American citizen has insufficient information, and perhaps inadequate interest, to hold an enlightened attitude toward land management problems, and that these procedures and concepts can be revised only by those political, economic, and scientific leaders directly involved.

I would like to urge, however, that the same situation pertains to the issue of land ownership itself. Again, the citizenry at large possesses neither the information nor the interest to hold an enlightened opinion on the technical aspects of federal land ownership, which must necessarily be left to the judgment of their representative political, economic, and scientific leaders who are directly involved.

These are the proper processes of democracy, in which those who represent us in every area of life provide the informed leadership which is essential to national growth. Dr. Clawson and Dr. Held appear to accept the wisdom of these processes insofar as federal land management is concerned, yet they duck the issue of ownership by the neat assertion that the average U. S. citizen would not tolerate a substantial change.

This reluctance to face squarely the ownership issue is doubly perplexing in view of many statements in the book to the effect that "One of the great needs of the future in federal land management is to marry the best features of enlightened private business management with sound, test features of public resource management as these have evolved over the years."

Does not such an honest statement raise the very issue which the authors have refused to consider? I believe that it does, just as I believe that The American Forestry Association raises the problem of federal land management when it addresses itself to the ownership issue.

Taking the problem of management alone, however, the authors are marvelously accurate and precise in pin-pointing weaknesses in the present federal procedure. With a sound forecast of increasing use for all federal land resources, they suggest the creation of a federal land corporation as the most practical alternative for management practices that would efficiently handle this increased resource-use. The problem to them is largely one of profit-and-loss, of revenue-versus-expenditure; and in this connection they make a lucid case for a federal land corporation.

Federal Lands is not fast or easy reading, but it is important for all resource specialists, and it will doubtless become a bible to those who accept without question the present ownership pattern, but who recognize the appalling inadequacies of federal land management today.

The Southeastern Frontier

LIKE so many words in our language, "frontier" has become a loose, imprecise term, applied to any aspect of these days in which there is the promise of startling expansion, be it atoms or antibiotics.

The word is properly used, however, in describing the agricultural future of the southeastern United States, as I noted recently in this column in commenting upon Edward Higbee's brilliant book, *The American Oasis.* Those humid flatlands that form a triangle between the Atlantic and the Gulf are in truth a frontier in which men of ingenuity and energy will create a new farm economy, and by doing so, create a new society.

Yet this frontier is technological, since the tired and trodden land will bloom again by means of science and machinery. Once upon a time, of course, these planes were neither tired nor trodden. To the white men from Europe this was a geographical frontier, where every turn brought adventure. Therefore, as we set ourselves to building a new Southeast, it would be entertaining, perhaps even practical, to learn something of that virgin Southeast, of those forested, mosquito-ridden Indian haunts discovered by our forefathers 200 and more years ago.

The essays and letters of John and William Bartram offer an honest, practical means of inquiry into this forgotten tidewater mystery-land. Fortunately, many of their observations are available now in an anthology edited by Helen G. Cruickshank, *John and William Bartram's America* (Devin-Adair. 1957. 418 pp. $5.00).

John and William, father and son, were early American naturalists—among the first. Both men travelled extensively throughout the middle and late years of the 18th Century, chiefly criss-crossing the Southeast by foot and horseback. Avid collectors, they shipped countless seeds and specimens to Europe. Their correspondence was extensive with such men as Franklin and Jefferson, concerning the wonders of the natural world that they both knew and loved as well as any men of their time.

Regretfully, Mrs. Cruickshank is not trained primarily in either literature or biography. Despite her enthusiasm for the heroic labors of these men, she has not put together a book that conveys more than momentary glimpses of their inner substance. A man's work is a poor mirror of himself.

What the reader does gain, however, is a remarkably sensitive picture of the Bartram's America—just as the title promises. And what an America it was!

"When the planters fell these mighty trees [cypress], they raise a stage around them, as high as to reach above the buttresses; on this stage, eight or ten Negroes ascend with their axes and fall to work round its trunk. I have seen trunks of these trees that would measure eight, ten, and twelve feet in diameter, and forty and fifty feet straight shaft."

Or this: "We now entered a very remarkable grove of dogwood trees, which continued nine or ten miles unalterable, except here and there a towering magnolia. . . . The trees were about twelve feet high, spreading horizontally. Their limbs, meeting and interlocking with each other, formed one vast, shady, cool grove, so dense and humid as to exclude the sunbeams and prevent the intrusion of almost every other vegetable. . . ."

John Bartram was the tireless, careful collector. His letters document this, but add little else. His travel notes, however, are rich candid shots of life as explorers lived it, before Abercrombie & Fitch.

William was the poet of the two, and I assume the easier companion. He saw the forest rather than the trees, and his essays are the more substantive part of the book. John's contribution to his own age was the greater, but William has more to say to us.

The book is not well paced. Perhaps a freer use of footnotes and a clearer orientation to the times and events of the outside world would have given the text better flow. While *John and William Bartram's America* is not, therefore, for general reading, it is very likely the best personal account of the first southeastern frontier. And this makes it necessary reading for those today who take an intelligent interest in the second frontier that is arising from the discarded cotton fields, the burned-over forests, of the land which the Bartrams knew when it was healthy, and full of itself.

NEW AND IMPORTANT

Wings of the Forest, by William J. Long. (Doubleday. 1957. 239 pp. $4.00.)

Of the making of wildlife anecdotes there is no apparent end. Authors who did not merit a paragraph in print have published entire volumes of animal lore. If animals could read, they would regard most of this stuff as just so much "science fiction."

Wings of the Forest is a rare and notable exception to this condition. It tells about birds in a way that I believe would be acceptable to the birds themselves. Certainly it is more than acceptable, it is a treasure, for those of us who have known a few birds, and loved them.

California Coast Redwood, an annotated bibliography to and including 1955, compiled by Emanuel Fritz. (Foundation for American Resource Management. 1957. 267 pp. $7.50.)

Here is a bibliography that leaves nothing to be desired. *Sequoia sempervirens* is a major forest resource, and Dr. Fritz tells where virtually all the data concerning it can be found. With the publication of this significant reference work, there is every likelihood that the redwoods will be even better managed than at present.

Atlas of the Pacific Northwest, Resources and Development. Second Edition. Edited by Richard M. Highsmith, Jr. Oregon State College. (1957. 140 pp. $3.50.)

The Pacific Northwest, as every school boy knows, is a big man's land of big forests, mountains and rivers. It embraces the states of Washington and Oregon, part of Montana and most of Idaho. Population here is growing at twice the national average.

Compiled by a phalanx of Oregon professors, this regional *Atlas* documents these Northwest resources in a sensible, useful manner. It is an exceptionally good editorial job. Whether your interest is in copper or cows, in wood products utilization or urban development, you will find here pertinent introductory material.

The book is not exhaustive, and could not be. Rather, it offers a general orientation for the student, traveller, or resource specialist. Every responsible Northwest leader, whatever his field, would do well to sleep with it under his pillow for a week or two.

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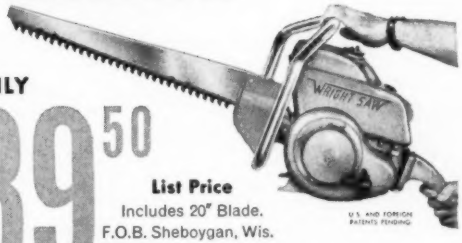

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Madison Board Meeting

(*From page 7*)

it yet. While no workable alternate plan to federal acquisition has as yet been produced, some members feel strongly that the Indian lands should be placed on the tax role if this can be done in a manner that will assure sound management of the resources involved. Proponents for federal purchase denied that federal acquisition would remove these lands from the tax roles and pointed out that such a move would assure the lands would be even closer to the local economy with 25 percent of all receipts from timber sales going directly to the counties involved. Whereupon a business man retorted that private ownership of the lands would assure tax receipts "immediately" whereas federal ownership would assure tax receipts "sometime."

Decision Urged

President Don P. Johnston urged the board to give the problem its most careful consideration since the Klamath case represents the forerunner of a whole series of similar problems including one in Wisconsin. The president said he wasn't going to let board members "out of this room" until they came up with some concerted action that would at least assure continued sound timber management on the lands.

Why doesn't the state of Oregon step in and purchase these lands, one board member asked? He was told that Senator Neuberger had carefully sounded out a number of business leaders on this question and 35 business leaders told him that this was a federal problem and that the federal government wasn't going to foist it off on the state of Oregon. An exploration of this angle by AFA duplicated the findings of Senator Neuberger.

Another roadblock that prevented a meeting of minds was the fact that no definite price has yet been set on the timber involved although the Interior Department now has the report of the Management Specialists. Rumors on the evaluation have set the price at anywhere from 40 to 150 million dollars. As a result, some board members said flatly they were not going along with any concrete proposal until they knew the price. Whether the government sets the price too high on too high a plateau, in a sense, is the crux of the whole problem, these members said.

At this point, one prominent state forester said that the public interest is involved regarding these "semi-public" lands (they are owned by the Indians but have always been managed by the federal government). That interest, he continued, is to make sure that the resource be perpetuated and not splintered or squandered. The only way to do this, another forester next stated, is to have the federal government purchase the lands. Furthermore, the members of The American Forestry Association will demand that this be done, he predicted.

With foresters mounting their attack for immediate federal purchase of the lands and with other members stubbornly fighting a delaying action in the hope that something constructive may turn up, it became apparent that the board was split, for the moment, on the issue. In searching for areas of agreement the Chair determined that there was only one, namely, that these timber lands must be continued under sustained yield management. The following resolution was drafted.

"In the present state of the record with no knowledge of the appraisal, The American Forestry Association recommends that the disposal of timber lands in the Klamath Indian Reservation should be made under such conditions as will assure sustained forest production and maximum permanent contribution to the economy of the area including the economy of the Indians themselves."

Issue Ducked, Newspaper Says

This resolution was promptly attacked by a leading forester as "a successful dodging of the real issue, a statement full of glittering generalities that doesn't mean a . . . thing."

The resolution was passed but Correspondent Russell Lynch, of the Milwaukee *Journal*, promptly announced on the front page of his newspaper that "AFA had ducked the issue." Cool heads in AFA concurred that there was an element of truth in the statement but as one lay member of the board said, "It is sometimes better to duck than to go off half-cocked. We need more facts on this problem."

Taking note of continued heavy military withdrawals from the public lands structure, the board unanimously endorsed in principle the bill introduced by Representative Engle, of California (H.R. 5538), that calls for Congressional examination of all withdrawals of 5,000 acres or over. Board members from every region in the nation said that in their judgment the time had come to take a very careful look at continued requests of the military for more and more land—especially as those withdrawals have to do with "substantial areas."

Long Bill Studied

In view of its endorsement of its own land ownership study in California (See page 25) the board examined a bill (S. 2579) introduced by Senator Russell Long, of Louisiana, calling for a federal-state land ownership study. The staff recommended against affiliating the association with this proposal for the following reasons: 1) it is aimed to coincide with AFA's own program for forestry but fails to meet AFA's specifications; 2) it pre-supposes that there are major dislocations in the present federal land structure; 3) AFA believes there is no single ownership problem but a complexity of problems.

Board members pointed out that a vast amount of labor has gone into the drafting of this bill but as one member added, "It impresses me as a gun pointed fully at the national forests. There is nothing sacrosanct about the boundaries of the parks, the wildlife refuges or the military installations in conducting any land study—and they can't rightfully be excluded." Board members said they particularly disliked Senator Long's proposal to create a national commission with no opportunity to review findings. This was termed "not democratic" by two members because it "tends to exclude debate."

WISCONSIN PRESS LAUDED

The press of Wisconsin was lauded as "one of the most informed on all phases of conservation in the United States" by President Don P. Johnston, of AFA, at the conclusion of the 82nd Annual Meeting. "Coverage of the meeting was exact, complete and interesting," Mr. Johnston said, Use of the meeting as a springboard for calling the attention of the public to forestry needs in the State Conservation Department was singled out by President Johnston as an especially ingenious piece of work.

Whether AFA should try and work with Senator Long to bring his bill up to AFA specifications or draft its own bill was next explored and the Chair appointed a special committee to study the matter. While the committee's report has not as yet been officially filed, it was reported the committee will recommend that AFA draft its own land ownership bill thereby making sure that it says exactly what the association means. The committee may further recommend that the time has come to re-examine Section One dealing with forest land ownership in AFA's Program for American Forestry and bring it up to date in the light of facts uncovered by the association's California study just completed.

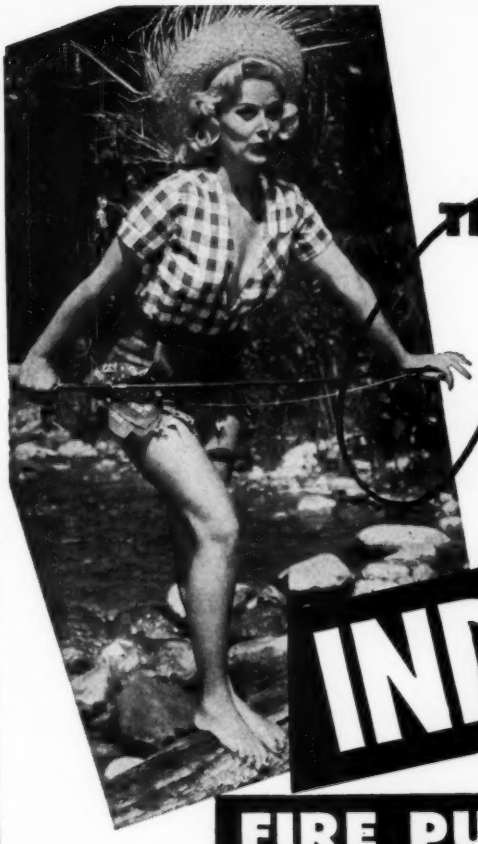
Roadside Planting Urged

The staff drew the board's attention to the fact that some members are viewing the success of the billboard industry in the recent session of Congress with a jaundiced eye. Efforts by conservationists to keep highways clear of billboards under the proposed federal highway program have been blocked. Cognizant that AFA's Board had previously ruled that billboards and their construction are outside their jurisdiction, Ovid Butler, executive director-emeritus and other leaders, conferred with staff members at the Cosmos Club in Washington prior to the board meeting to propose that the association take constructive steps to help thwart construction of a jungle of billboards.

"The association is on record that billboards are outside of its official purview," Mr. Butler said. "But there is no reason why it cannot endorse and get behind a constructive and positive program to plant trees, shrubs and otherwise beautify these roadsides along highways that are being constructed by federal funds. I believe the association owes it to the public to take such a step and to get wholeheartedly behind it."

The board unanimously approved this suggestion to make America's roadsides green and instructed the staff to explore how trees and other growing things can be pushed to the fore as the highway program gets underway.

In other actions, the board endorsed a Theodore Roosevelt Centennial Edition of *American Conservation* by Ovid Butler, and approved prompt publication of Dr. Dana's California ownership study.



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AFA Hears Interior Secretary Seaton

(*From page* 6)

Shall we then be able to get all the water we need simply by building more and bigger storage facilities? The answer is probably no. To be prudent, we must seek new sources. And that means, among other things, that we must learn how to turn sea and brackish water into supplies for agriculture, industry, and human consumption, at acceptable costs.

For five years now, the Department of the Interior's Office of Saline Water has been working to solve that problem. We have entered into 49 research and development contracts with individuals and private organizations. We have closely cooperated with foreign nations engaged in a similar activity. We are now ready to build pilot plants to test and refine our laboratory results.

When the program really got underway in 1953, the lowest then estimated cost of converting saline water was $1.50 or more per thousand gallons. Today, we have a reasonable expectation of bringing this down to 60 cents a thousand gallons, or even less.

Actually, local and regional water shortages have already forced some consumers to pay considerably more for fresh water. And for two years the Pacific Gas and Electric Company in California has been using converted seawater in its fourth largest steam generating plant at a cost of more than $2.50 per thousand gallons.

When potable water is in short enough supply, you pay what you have to pay. Citizens in many American communities learned that the hard way within the past year when twelve hundred communities from coast to coast suffered a shortage in municipal water supply. In Dallas, for a while, a gallon of drinking water cost more than twice as much as a gallon of gasoline.

I predict saline water conversion will one day be a powerful deterrent to the recurrence of such calamities. Given continued progress in research, the cost of converted water should tend to become competitive with that from other sources in 15 years, and perhaps even sooner.

Where the final mastery of this problem will ultimately lead, no one knows. However, it certainly requires no excess of imagination to foresee pipelines carrying converted water far inland; to visualize millions of acres in our own arid West made fertile for the first time in recorded history; to see vast areas in the Middle East and Africa bloom once again, as they did in the days of Babylon and Carthage; to see central Australia made fruitful. For the future of life on this planet, the implications in this current investigation are immense.

So are the implications of the efforts to produce electric power from atomic energy.

The Federal Power Commission estimates that just to keep up with the demand for new electric power facilities in the next 20 years, the United States will have to expend at least $96 billion.

What form will those new installations take?

The commission believes that only eight and one-half percent can come from the development of new hydroelectric power sites.

The great bulk of new capacity in the next decade will therefore have to come from conventional steam plants, which burn fossil fuels—oil, gas, or coal. We have plenty of these, of course, enough to last us for years to come. But even today one fact is apparent: ultimately our generating capacity will depend not so much on our ability to use falling water or to produce electricity in conventional steam plants. Rather, with the costs of fossil fuels rising, and with shifts in the places where significant amounts of additional power are needed, we probably will increasingly depend on our ability to master the processes of fission and fusion.

Already a pattern is beginning to take shape.

Sometime next year, people in the Pittsburgh area will have atomic power coming into their factories, homes, mines, and farms. By 1960 atomic power will light homes and offices in western Massachusetts, in Detroit, in Chicago, and in New York. Only 10 days ago the Atomic Energy Commission signed a contract with the Consumers Public Power District of Nebraska for the construction of a generating plant with a capacity of 75,000 kilowatts. Another contract is under negotiation with the Rural Cooperative Power Association in Minnesota, for a plant near Elk River, with a capacity of 22,000 kilowatts. By 1962 there should be about 1,325,000 kilowatts of nuclear generating capacity serving cities and towns and rural areas scattered across this country. Provided present trends in research, technology, and comparative costs continue, the AEC estimates that in most parts of the country nuclear power will be competitive in cost with conventional steam power within 20 years.

In the length of time that it takes an infant to grow to maturity, America's nuclear power industry could come of age.

Your own association has an understandable concern with a third great resource problem: assuring a supply of timber adequate to meet the demands of the future.

Seventy-three percent of the United States' commercial forest lands is in private hands and while a great deal of it has been brilliantly managed, there is much to be accomplished in that respect.

Private timber owners and state forestry departments deserve our congratulations on their contributions to good forestry practice. You and I know the Wisconsin department has done particularly outstanding work in this field. I applaud also The American Forestry Association's efforts to bring even more of these private and individual holdings under sustained-yield management.

For its part, the federal government is pledged to share in such a continuing educational process.

Just 120 miles from here is the Menominee Indian Forest, containing the Lake States' most outstanding area of white pine and northern hardwoods. Since the turn of the century, when Wisconsin's Senator Robert M. LaFollette, Sr., initiated federal legislation prohibiting the cutting of more than 20 million board-feet a year, this forest has been under sustained-yield management.

The legislation terminating federal trusteeship over the affairs of the Menominee Tribe has been of real concern to me, as the Secretary of the Interior.

Let me assure you that the department has two explicit policies: first, to see to it that the members of the tribe are accorded the same rights as the other American citizens; second, in consonance with the department's responsibilities, to cooperate in assuring that the plans for the future management of the Menominee Forest make adequate provision for sensible conservation of that matchless asset.

In any case, neither the federal government, the State of Wisconsin,

nor this association can afford to sit by supinely and see the forest butchered into oblivion.

The department confronts similar problems in the proposed termination of federal trusteeship over the lands of the Klamath Indians in Oregon. Their reservation's forests contain more than 4½ billion board-feet of tribally owned timber—principally ponderosa pine—growing on some 660,000 acres of commercial timberland. Under proper sustained-yield management this forest may yield in perpetuity an annual cut exceeding 60 million board-feet. That means the Klamath forest could produce enough timber every year to build homes for six thousand American families.

The national interest demands that this resource remain under sustained-yield management.

In 1954, the Congress and the Department of the Interior decided that the time had come to end federal trusteeship over the Klamath lands. However, our subsequent study of the problems involved has disclosed that the legislation failed to include provisions for adequate protection of the timberlands.

We have no intention of passively standing by and permitting the forest and the great marsh, which is part of the Klamath holdings, to be sliced up into small units, possibly exploited, and thus even ultimately destroyed.

Twin problems confront the federal government and the state of Oregon: protecting the property rights of the Klamath Indians and providing for a continuation of sustained-yield management.

Public ownership is one possible answer. Any reasonable alternative which would accomplish the same results would be welcome.

I have written to the chairman of the Senate Subcommittee on Indian Affairs affirming the department's determination to work with the Congress to protect this resource. Early in the next session the department will submit to the Congress its specific recommendations toward that end.

Kept intact and under sustained-yield management, the Klamath forest will remain a perpetually productive source of timber. It will continue to help prevent floods. It will continue to protect large numbers of migratory waterfowl, deer, and other wild animals. Year after year it will be there for further development as a recreational area.

The continued existence of this great forest will bring immeasurable benefits to us and to those who come after us—benefits perpetually recurring.

Too often, we take for granted our wonderful national heritage of bounteous natural resources.

We should never forget that this heritage is ours only because over the years the federal and state governments, and private enterprise, prodded by an enlightened citizenry, took steps to protect it.

Surely, millions upon millions of the people who each year visit our national parks and national forests return home with a stronger realization of the undebatable necessity of making the wisest possible use of our natural resources. Countless other people learn the same lesson in less pleasant ways: by living under the actuality or the constant threat of a shortage of electric power; by turning a water spigot and having nothing come out but a cough of air; by seeing their homes washed away by flood waters.

In the years ahead one of the most important objectives of The American Forestry Association, of similar organizations, and of the federal and state governments should be to maintain and even strengthen a national consciousness of the importance of conservation.

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(*From page* 40)

which need to be improved. An additional 29,000 miles are needed for full development and intensive management of the commercial stands of national forest timber. Almost half of the additional mileage is needed to get up to the full allowable cut on all national forests. The balance will be needed to maintain the cut at full allowable capacity once it has been reached."

Cliff was talking timber marketing on a sensible basis when he spoke those words before House Public Works Committee. He could have mentioned essentiality of good access roads as a requirement for fire and pest control, too.

For example, look what lack of access roads has cost us — is costing us — and will cost us — in one national forest of Washington State. I refer to the emergent situation confronting us in Gifford Pinchot National Forest where the Forest Service is now faced with immediate harvest of at least 47,680 acres of true fir species infested with balsam woolly aphid — or Chermes. Only a sixteenth of an inch in length, this intruder from Europe has affected or damaged 753,000,000 board feet of fir. This stand is located in 1,675,000,000 board feet of Douglasfir and Western hemlock, as yet unaffected by this plague.

But we may lose the unaffected timber just to salvage the damaged stands.

Here is how that may work:

Since there are few access roads into the infested area, and since Forest Service doesn't have the Congressional appropriations to build the access roads needed to salvage damaged timber and begin reforestation, probably another long-used alternate harvest plan may be used; a plan under which timber operators will be called upon to build the access roads — but, in turn, the federal government stands to realize less income from the sale — in addition to being forced to market the good timber. If appropriated funds are used, experienced road contractors will bid to build these roads.

Forestry officials have told Senate and House Committees frankly that when timber operators have to make access road construction a part of their timber bid, they must, necessarily, bid less for the timber. And, forestry officials agree still further, only the larger timber operators can participate in this kind of sale. So, in effect, many smaller operators are not able to bid.

How much do these "salvage" operations cost the taxpayer?

A partial answer came during the Newsprint Price Inquiry my Senate Interstate and Foreign Commerce Committee conducted last March. Ira J. Mason, Chief of the Division of Timber Management, U. S. Forest Service, was in the witness chair. I had asked him about the situation on the Gifford Pinchot National Forest as to the area affected and plans for marketing it.

Mason answered:

"I think there are 600,000,000 feet of Pacific silver fir, the species that is being killed; and associated with that is about 2 billion feet of other species that must be logged to get the 600 million out."

I am now awaiting a further answer from Forest Service Chief Richard E. McArdle to these questions:

(1) Would advance construction of access roads utilizing appropriated funds make it more possible to restrict cutting *primarily* to the infested timber?

(2) Will your present plan (for marketing this diseased timber) cause to be exceeded sustained yield cutting limits?

(3) If this is the case, what alternative course could be followed which would minimize overcutting while maximizing the salvage of diseased timber?

I had been told earlier by McArdle that "Gifford Pinchot salvage will require an additional 20 to 25 yearlong employees plus some seasonal help for sale layout, sales administration, road location and design, and residency engineering."

Gifford Pinchot Forest and the salvage operation presently underway provides one example of what happens when the timber access road building program lags miserably behind schedule. How much better to have had the access roads in time to deal with the Chermes infestation when it was on the increase, before the vast block of true fir had been irreparably damaged? How much more efficiently could have the salvage operation been conducted if not suddenly thrust upon the meagre, fugal and yes, unrealistic, timber access road budget of Forest Service? How much of the unaffected Douglasfir and Western hemlock stands could have escaped the mass sale maneuver which has now been made necessary through inability to build suitable access roads with direct Congressional appropriations?

This is happening in my state, in a forest named for the founder of American forestry. It could happen in yours.

Undoubtedly Ed Cliff was describing a situation which may exist without your knowledge in your area when he told House Public Works Committee:

"Because of the lack of timber access roads, the timber cut from the national forests in fiscal 1953 was about 1.5 billion feet below the sustained allowable cut. The financial loss to the federal government through inability to market mature timber was about $20 million in gross revenue in that one year. Losses of this character will continue each year until the major part of the timber access road system has been installed. Because of the age and condition of this timber, losses from disease, insects, windfall and fire each year just about balance the relatively small amount of growth which occurs on these old timber stands.

"This valuable timber needs to be harvested promptly and in an orderly way, and the land on which it is standing should be conditioned to produce future growth through regeneration to young vigorous timber.

"Increased revenues to the government from expanded timber sales as the result of timber access roads will more than offset the cost of the roads. Therefore, federal investments in timber access roads on the national forests will return a net profit to the Treasury over a period of years."

That language made sense to Senate Appropriations Committee. I believe it will win support during the Gore hearings on the West Coast this fall.

Senator Carl Hayden speaking of these losses told the American people the true meaning of conservation when he said, "If the Congress had done what the Senator from Oregon and I would like see done, that would not have occurred." He de-

scribed the construction of these roads *as an economy measure.*

I hope it becomes a matter of paramount concern to each member when the 85th Congress reconvenes in January and that Congress not only insists upon a long-range emphasis being placed upon enough access roads to protect and harvest our timber but implements that program with enough funds to do the job.

Seaway to Progress

(*From page* 19)

and varied. Some are immediate and temporary; others will be permanent in the lives of Americans and Canadians. The Seaway is the realization of men of vision during the last century. We see their dreams coming true, taking form in channels, canals, locks, and structures of concrete and steel.

Many of the 15,000 men working on various phases of St. Lawrence construction have moved their families to the areas. Massena, New York, Seaway and power construction headquarters on the American side, has 53 trailer camps. So many construction-workers' children attend Massena schools that half-day sessions are necessary.

Thousands of residents along the St. Lawrence above the power dam are being relocated because a 30-mile lake will form when water backs up behind the 167-foot-high powerhouse. This lake will provide new areas for wildlife and luring facilities for recreation. Parks are being planned along its shores and on its newly-created islands.

Ontario Hydro and the New York Power Authority both employ trained tour leaders who are kept fully briefed to give accurate information to visitors. Both have excellent visitors' centers. Short orientation films, telescopes, diagram maps, and a Construction Progress Model in the Power Authority's Administration Building all help the visitor understand the complicated and sprawling projects. The Power Authority even has television cameras at construction sites, and visitors can watch construction close-up —from the comfort and safety of the visitor's center.

This dramatic Seaway "show" extends 190 miles from Montreal to Lake Ontario. In the International Section you see American work on the 10-mile Long Sault Canal and the two U.S. locks, the Dwight D.

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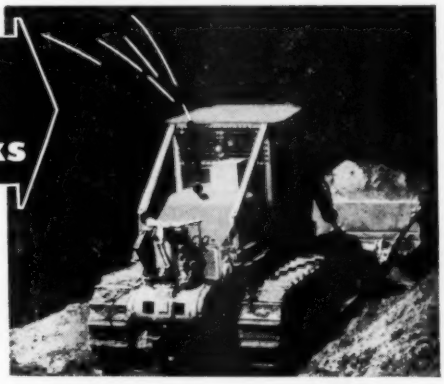

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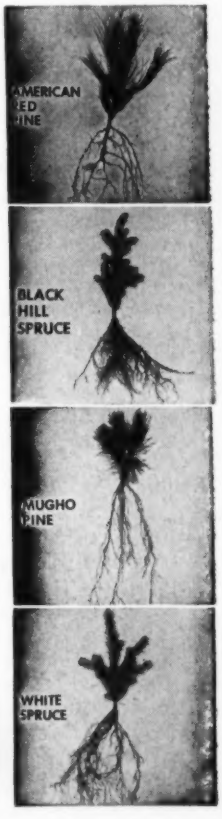

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Eisenhower and the Grasse River Lock. In the Massena area are the international powerhouse and the 2,350-foot Long Sault Dam. Dikes, dredging, and work on the new high-level international bridge being built jointly by the Seaway entities, all add drama to the changing scene.

Canadian work in the International Section is primarily on the powerhouse, dredging for the Seaway channel, and the international high-level bridge from Cornwall Island to the American mainland. Huge dikes are also being constructed to control the lower end of the 30-mile lake.

Canada's most dramatic phases of Seaway work are in the Montreal and Iroquois areas. At Montreal the Canadians are constructing an 18-mile canal to by-pass the Lachine Rapids. It requires two locks, the St. Lambert with a 15-foot lift and the Cote St. Catherine with a 35-foot lift. Two large turning basins are also being built. These are all on the south bank opposite Montreal, and Canadians hope the Seaway will spark a big industrial development in this area. A complicated problem at Montreal is the raising of all bridges across the St. Lawrence to provide a minimum 120-foot clearance above the Seaway.

Canadians have two more Seaway locks at the Beauharnois Canal between Lake St. Louis and Lake St. Francis upstream from Montreal about half way to Cornwall, Ontario. Cornwall will be the permanent site for Seaway and St. Lawrence power headquarters on the Canadian side, just as those on the American side will be near Massena.

Canada's fifth Seaway canal is some 30 miles upstream from Cornwall. This is the Iroquois Canal and Iroquois Lock. An elevated lookout here affords visitors an excellent view of construction work at close range. At this point, too, the big Iroquois Control Dam crosses the St. Lawrence. Major Seaway and power structures are closer together here than at any other point.

Other major Seaway work that attracts visitors is dredging in both American and Canadian portions of the scenic Thousand Islands, and deepening of Canada's Welland Canal that enables ships to navigate between Lake Ontario and Lake Erie around Niagara Falls. The 27-mile Welland Canal has eight locks. Their size provided the pattern for the new Seaway locks.

"Keeping pace with the feverish construction activity are the conjecture and excitement concerning the impact of the Seaway on the economy of the Great Lakes and St. Lawrence basin," Mr. Martin W. Oettershagen, Deputy Administrator of the St. Lawrence Seaway Development Corporation, recently told a Chicago audience. "It is not an over-statement to say that this is the most exciting and economically significant area on the globe, resulting from population increases, unprecedented industrial and commercial expansion, a vast productive hinterland, an inexhaustible supply of fresh water, a stimulating climate, plus virile and ambitious population."

Canadian 14-foot canals have an annual capacity of about 10,000,000 tons. Estimates of tonnages on the Seaway vary, but those generally accepted are that in 1959, shipping on the Seaway may reach 36,500,000 tons of cargo. Principal commodities are estimated to be: grain, 12,100,000 tons; iron ore, 10,500,000 tons; coal, 3,700,000 tons; petroleum, 2,300,000 tons; nonferrous metals, 800,000 tons; wood pulp, 700,000 tons, and general cargo, 6,400,000 tons.

Ships that can use the Seaway will have five to ten times greater carrying capacity than those formerly using the 14-foot canals. Looking further into the future, Seaway traffic experts estimate that by 1965 to 1970, annual shipping through the Seaway may be about 52,000,000 tons annually.

Apathy has marked the attitudes of many industries and organizations whose future will inevitably be affected by the St. Lawrence Seaway. So many decades went by while the Seaway was merely being talked about that many industrialists have not yet waked up, apparently, to the fact that in the spring of 1959 the Seaway will be in operation.

Some top economists of organizations representing lumber and other forest-product industries told me in the summer of 1957 that they have not even begun to *think* about probable impacts of the Seaway on future operations of forest-product industries.

One official of such an organization said that forest-product industries are so "in the habit" of shipping in old ways that he doubted whether anything could make them change. Another economist had made no study of the Seaway's forest-industry impacts since World War II.

"We have no information whatever on the subject . . . and doubt that any of our member mills will be in a position to take advantage of the St. Lawrence Seaway," wrote an official of one forest-product organization in a state contiguous to the Great Lakes.

On the other hand, an example of a forest-products industry that has not only devoted a great deal of thought to the opening of the Great Lakes to ocean-going shipping but is preparing for the Seaway Age is a Canadian paper company that wrote me as follows:

"We are presently engaged in an expansion program which will increase our newsprint capacity almost fourfold and provide facilities for manufacture of cellulose products other than newsprint.

"Frankly, the decision to proceed with this expansion of our plant was due, to some extent, to the effect the St. Lawrence Seaway would have on growth and development of the Middle West which is primarily our immediate market area."

Officials of this company have looked to the future and realized that the Seaway will have long-term impacts. Populations are growing. Seaway shipping will open new markets. Forest-product industries that will harvest the benefits of the Seaway Age are those whose planning and preparation will enable them to meet its opportunities.

"The development of the Seaway will undoubtedly have a beneficial effect on the costs of transportation of lumber, pulpwood, newsprint, and other forest products which now travel by lake boat or river steamer on the Great Lakes and St. Lawrence River," Mr. D. A. Macdonald, then director of the Forestry Branch of Canada's Department of Northern Affairs and Natural Resources, told me in 1955. "It is difficult to estimate the probable impact of transportation of forest products without going into specific cases. For instance, pulpwood is now shipped from the lower St. Lawrence to Thorold, Ontario. The development of the Seaway would mean that this wood could be shipped in larger bottoms at presumably cheaper cost. Lumber could also be shipped overseas from the head of the lakes without trans-shipment at Montreal or Quebec."

Seaway tolls ultimately worked out by the United States and Can-

ada will be a deciding factor in the minds of many shippers of forest products, as well as other commodities, on the extent of their use of the Seaway. Shippers on Canada's 14-foot canals have paid no tolls, so *any* tolls on the Seaway will find some opposition. The problem is this: if Seaway tolls are low enough to make the Seaway profitable for shippers they will use it; if tolls are too high, many will use other modes of transportation.

Seaway administrators, however, have another problem. Legislation authorizing the Seaway specified that this waterway shall pay for itself. Tolls are to pay construction costs and operation and maintenance expenses. Inflation and some design changes have increased construction costs from $288 million, for both nations, to about $460 million. Tolls to pay off this higher cost in 50 years must either be higher than previously anticipated or the period extended. Both nations are holding hearings in an effort to establish a fair tolls system.

Predictions have long been made that Pacific Coast timber products can be profitably shipped to Midwest ports through the Panama Canal and the Seaway. Tolls are a key factor here, too; but two large western lumber firms with whom I discussed this possibility could not foresee that they will make much use of the Seaway.

States likely to feel greatest impacts of the Seaway are those bordering on the Great Lakes and the St. Lawrence, and other states within shipping range of Great Lakes and St. Lawrence ports. This applies likewise to Canadian provinces. Much thought and work are being exerted in some regions in preparation for the Seaway.

Michigan, for example, borders directly on four of the five Great Lakes, as well as Lake St. Clair and all the other connecting channels of the Seaway except the Welland Canal. Michigan's studies of potential impacts of the Seaway therefore are significant, with implications for the entire Seaway region.

"The bringing of 27-foot navigation to the largest body of fresh water in the world, thereby giving it direct communication with the principal areas of overseas trade, is highly significant, particularly since water has become one of the vital and even scarce raw materials of industry," Michigan's Department of Economic Development recently reported. "When this is combined with the Midwest's concentration of metal working industries, greatest in the world, its rich agricultural region, and the world's greatest volume of skilled labor, there is a tremendous industrial attraction particularly for those interested in international trade or relying on imported raw materials."

The Seaway's 2,350-mile penetration into the heartland of North America creates a new northern seacoast for the United States and a southern seacoast for Canada. "This new seacoast," Michigan planners predict, "should eventually mean to our great Midwest area what the Baltic sea means to North European nations, and the Mediterranean to southern European countries."

Forest-product industries should reap their share of the expanded ship-building, new homes and industries, and increased trade expected in the Midwest as a result of the Seaway. Michigan already has 900 firms that engage in foreign trade. Among products the Michigan survey indicates might well be further processed or manuiactured in the Great Lakes region are wood products and long-fibre woodpulp for paper.

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Program for American Forestry

(*From page* 27)

development of an action program.

III. *Multiple-Use Policies*

In seeking the "greatest good for the greatest number in the long run," forests provide many services and products in addition to timber. Conservation of water, for example, has become a nation-wide concern.

Unofficial estimates indicate that three-fourths of all the forested lands of this country are important in water management. Extremes of drought and flood plague many states. New conflicts of interest continue to arise between water development and other uses of forest land. Next year the association will devote its Annual Conference to water conservation.

Mining on public lands is another important interest.

When the association in 1953 developed its Program for American Forestry, it stated that the use of the mining laws as a means of acquiring government lands for other than mining purposes must be stopped. At that time millions of acres of valuable timber and other surface resources were tied up in mining claims. Federal agencies, forced to observe antiquated mining laws were powerless.

A serious campaign to remedy the situation was publicized through *American Forests*. Eventually a compromise bill which recognized both the objectives of administrative officials and the interests of the mining industry was passed by Congress. Since that date in 1955 the Forest Service and the Bureau of Land Management have made substantial progress in placing these lands under proper forest management. The mining industries themselves have been on the whole very cooperative with this constructive move.

Again the expanding population of the country, with more leisure and a growing appreciation of the out-of-doors, has created tremendous demands for all forms of forest recreation. Existing facilities already are overtaxed. The association constantly has recommended more attention to recreational facilities. This year the Congress has recognized the need through increased appropriations.

Wildlife conservation also is an important part of multiple-use forestry and the association has urged its consideration in forest management plans.

IV. *Education and Assistance to Forest Owners*

Three-fourths of our commercial forest land is in private ownership. It is distributed among more than four million owners in tracts ranging from small farm woodlands to large corporate holdings. Many of these owners, especially of small ownerships, are not informed of the best proven methods and techniques of managing their woodlands for continuous timber growing. This is the field in which the association has been most active in recent months.

Our Annual Meeting last year in Maryland focused attention on the problems of the small woodland owner. During ensuing months *American Forests* carried pertinent articles, particularly "A Woodlot Primer" in the February 1957 issue and a "Marketing Information Primer for Woodlot Owners" in the May issue. The demand for reprints of the former article has been four times greater than the entire initial distribution of the magazine itself.

The *American Forests* special issue on "Forestry as a Career" has received wide acclaim. Reader interest has been so great that the Old Dominion Foundation has underwritten a special reprint so that a copy may be placed in every high school in the country. Continuing emphasis on the growing opportunities in forestry will help to close the gap between man power requirements and qualified technical foresters. This is a major objective of the association.

V. *Forest Research*

New facts and a better understanding of future possibilities are especially important in developing the full productive capacity of cut-over regions now dependent on second growth stock especially of inferior species. This is one of the reasons for our Annual Conference in Madison this week.

We are seeking a better understanding of the growing, harvesting and utilization of products as a means of strengthening the entire forest economy. These topics will be developed today and tomorrow by outstanding speakers. The program of this conference has recruited extraordinary talent for these presentations. It is a great credit to a resourceful Program Committee.

In concluding this statement in behalf of the association may I venture unofficially a few observations concerning The American Forestry Association, its staff and its program. The association itself, founded in 1875, is the oldest national conservation organization in years of unbroken active operation. It, like other voluntary public service activities, has had its trials and its errors, its dreams and its disillusionments, its peaks and its valleys. For most of its life it has had leadership of high talent. For its Board of Directors it has always been able to secure men and women of ex-

perience and judgment, many of them of national eminence and deeply devoted to the public service which can be done unostentatiously through a democratic organization of this kind. The American Forestry Association has had an important, and at times a decisive, impact on American policy and action on forest and conservation matters during the past 40 years.

Small Woodlands and Utilization

(*From page* 30)

posal of low-grade material is quite a different matter, since the best of equipment and processing methods cannot economically produce generally acceptable wood products from basically poor raw material. This marketing difficulty may be especially severe in the case of hardwood tracts, which commonly contain only a relatively few economically superior kinds of trees among many species. Even the trees of desirable species will include many with poor form and a high percentage of defect.

The limited conversion opportunities for low-grade timber—softwoods as well as hardwoods—points up the need for stimulating industrial uses of such material. Continued and intensified research must find cheaper and better ways of harvesting and converting such timber and develop new and improved products and market outlets. The woodland owner also needs to know more fully the opportunities and requirements of the markets now available to him.

The extent and nature of market demands and the resultant utilization opportunities for small woodland products naturally vary widely from one section to another. Even within a limited marketing area, these opportunities depend largely on the character and location of the local wood-using industries and the proximity of a tract to pulp mills and other major wood-consuming plants.

Sawmills are generally most abundant in the regions dominated by small woodlands. Typically, these mills provide the most convenient market for standing timber (stumpage) and logs. In the main, these are small mills, and often portable in character. In the aggregate, there are some 52,000 active small sawmills, with thousands more operating occasionally, accounting for about half our national lumber production.

Since permanent sawmills tend to operate on a year-round basis, they provide a steadier market for stumpage and logs than the portable mills. They also generally manufacture a higher quality product, which commonly finds its way into more extensive and diversified dis-

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tribution channels than the lumber from the portable units. For that reason, they may be able to offer a better price for stumpage and logs, especially for timber of relatively high quality. On the other hand, while the portable mills may not operate as steadily, their ability to function at or near the source of supply means that they often provide a more convenient market for the farmer or other woodland owner than the permanent mill.

In sections where pulp mills and allied plants have become established, the sale of pulpwood stumpage and of cut pulpwood provides an important market outlet for the owners of small woodland properties. The pulpwood market will take small, low-quality wood of acceptable species, produced in thinnings and improvement cuttings in the course of growing higher-valued products.

The supply of wood available to a given pulp mill has been more generally limited by species requirements than by tree size, tree quality, or the total quantity of timber available in the area serving the mill. However, the former concentration on certain softwood and soft hardwood species is changing, as new developments in pulping technology—spurred by the diminishing supply of previously favored species—have brought about a rapidly increasing use of other species and particularly the denser hardwoods. This increased species base now affords an incentive in a number of areas for harvesting from hardwood stands some kinds of trees which previously were unwanted.

In general, trees suitable for veneer or cooperage stock, utility poles, or piling will also usually make average or better sawlogs. Consequently, the owner, when he has a choice, must decide which product he will favor in selling his timber. Such a decision obviously calls for more than a passing understanding of the market for the several items, with particular reference to specifications and prices. This points up the fact that availability of marketing information and assistance may be as important to the successful management of the small woodland tract as is an adequate knowledge of appropriate silvicultural practice.

Marketing is one of the most important aspects of managing a forest enterprise, since the financial success of the entire operation will depend on the effective sale of the various products to be removed. The major problem confronting some woodland owners may well be to find any sort of reasonable outlet for the timber which can and should be harvested from their holdings, particularly the lower-grade trees and those of species in little demand. But for owners in general the immediate problem lies in making better use of markets that already exist, to get a more adequate return for the timber they desire to sell. Accentuating the problem in either case is the plight of the owner who has but a few trees or logs or a small quantity of pulpwood to sell at one time. To overcome these drawbacks, the forest owner should know—or obtain the advice of someone who knows—the different kinds and grades of timber products which can be sold, methods of measuring them and of ascertaining their value, cutting specifications for the several products, procedures for making a sale, the location of markets, and current market prices.

Timberland owners are commonly advised to market higher-grade timber for a variety of products, depending on the best end-use of each tree or log. Thus, some better trees or logs may be best suited for veneer or cooperage, others for poles or piling, and the remainder for lower-value sawlogs. However, under such circumstances, the owner must decide whether or not such "creaming" of a tract for products other than sawlogs may leave a stand unattractive to the sawmill operator, who usually buys a greater volume of timber and may afford the best over-all market. The question he faces is, does the better marketing opportunity lie in selling a lim-

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ited amount of wood at a relatively high unit price or in disposing of a larger volume at a somewhat lower unit price?

In the main, and particularly in selling stumpage, the landowner may have no special concern for the forest management aspects of the harvesting operation, since only a small minority of individuals now manage and harvest their woodlands on a sustained-yield basis. Too often the owner's chief interest in selling timber is to derive the greatest immediate financial return, regardless of the effect that logging will have on his woodland.

One of the real opportunities for marketing woodland products lies in cooperative action among the owners. Whereas a single small owner often cannot sell the products of his timberland to good advantage, several such owners might be able to assemble a whole car of logs or arrange for pooling their veneer bolts or pulpwood offerings. Cooperative groups of small owners, formed to make selling easier and to obtain better prices, are becoming fairly common in some sections. Such group selling places the timberland owners in a much stronger bargaining position (overcoming one of the major weaknesses of the individual) and also saves the buyer time and expense, making it possible for him to pay higher prices for timber products and stumpage if he is so inclined.

In conclusion, I should like to make two observations. I have considered quite briefly a number of factors which may be regarded as contributing to the present uneconomic management and utilization of small woodlands in general. To a considerable degree, these factors may appear to be rooted in the prevailing small volumes of wood that can be harvested per acre from such holdings. However, there seems to be mounting evidence to confirm the idea that low volume *per sale*, rather than low cut per acre, is the principal cause of inefficient and hence expensive harvesting and management. If this be the case, there is more reason than ever to develop programs for pooling the resources of owners of small woodlands in a given marketing area, thereby providing larger and more efficient working units for the application of improved management and utilization practices.

My second point in effect sums up in one sentence much of the reasoning I have been endeavoring to substantiate in perhaps too many pages. Wherever the axe or saw is applied to timber, even a modest knowledge of wood utilization can usually help the woodland manager to better forest management and a higher, continuing financial return.

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Forest Research Aids Timber Utilization

(*From page* 21)

wider use of species that now are considered worthless, production of wood of the more desirable species remains a worthwhile goal in the eyes of industrial wood users. Much forest management research has been directed toward better methods of growing desirable species. The abundant conifer plantations that catch the eye of even the casual traveler are a prime example of the results of research on needed species.

Reforestation has concentrated on the coniferous species — largely the pines and spruces. Research has pointed the way to more efficient nursery practices for producing coniferous planting stock, to better planting methods and site preparation, and to cheaper methods of protecting these plantations from insects and disease, fire, and aggressive brush and weed trees. Chemicals supply nutrients and control weeds, insects, and disease in the nursery beds. Recent developments in plantation care include application from airplanes of herbicides, permitting the weeding of large areas of plantation that would otherwise have been crowded out by brush and scrub timber. Close to a million and a half acres of successful coniferous plantations have been established already, with 100,000 more being planted every year.

In the northern hardwood type with its wide range of species values, improved cutting methods for the abundant second-growth stands are being developed to encourage the maximum volume of valuable sugar maple, yellow birch, and basswood. Studies of selection management in older stands seek to favor reproduction and growth of these three species over the less useful red maple, ash, and hophornbeam.

Much of the forest research in the region aids forest-land owners to keep their lands in the highest practicable state of productivity. Fire, disease, and insect protection—fields in which progress has been considerable — represent a major effort in growing the desired quantities of wood. Although fire is an ever-present threat, protection agencies, guided by research, have produced an excellent fire record in recent years.

The Saratoga spittlebug, a killer of red pine plantations, can now be effectively controlled by airplane spraying. Research gives promise of control of the larch sawfly and the spruce budworm, which in past epidemics have wiped out extensive stands of larch, spruce, and balsam fir in many areas of the Lake States.

Blister rust can be controlled, and research on development of white pine strains resistant to blister rust and on the precise site on which the disease readily infects the vaulable white pine promises increasing volumes of this species in the future. Hypoxylon, a canker disease killing aspen, still defies control, but active research should give leads before long.

Genetics has entered the timber production picture with the recent establishment of the Northern Institute of Forest Genetics at Rhinelander, Wis. Presently work is concentrated on the white spruce, a species that is in short supply. Faster growing trees with greater resistance to the damaging factors of weather, insects, and disease is the goal of the program. As funds permit, work will be expanded to other important species of the area.

Controlling the density of timber stands—the number of trees growing on each acre — is another approach of research toward production of the needed quantities of wood. Thinning experiments have shown that forest owners can "eat their cake and have it too." The growth of many timber stands will not be impaired by judicious and repeated removal of a portion of the stand; in fact, the trees that will be produced at ultimate harvesting of the forest will be larger and of better quality than in unthinned stands.

Quality is especially important in northern hardwood stands with the

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great price differential between low- and high-quality material. Twenty-five years' research in the Upper Peninsula Experimental Forest at Dukes, Mich., is pointing the way toward sustained growth of quality material. The 91½ million acres of northern hardwoods are primarily second-growth stands in which defective trees are abundant. With the expansion of pulpwood, chemical wood, and charcoal markets for hardwoods, the possibilities of improvement through removal of low-quality material for these uses are multiplying.

Making the most of the existing timber is another phase of the station's program for aiding in better timber utilization. The large volume of defective timber, less desirable species, logging residue, and small trees which can be removed in improvement cutting present utilization problems in the Lake States which are far from solved.

Some of the activities aimed at aiding in better utilization of such material are illustrated by research projects now underway. The rapidly growing market for domestic use of charcoal is one opportunity to make profitable use of low-quality hardwood. Making charcoal from wood is an ancient art practiced the world over. Yet basic information on the techniques of kiln production and the economies of production are not known. Working with the Forest Products Laboratory, several experimental charcoal kilns are being tested. The results to date have brought forth many new ideas on charcoal kiln design and operation.

Improvements in timber harvesting methods are another aid in timber utilization. Damage to standing trees by logging equipment often results in defective logs later on. For example, results from one study indicate that tree-length skidding with a large tractor and arch injures more residual trees than either tree-length skidding or ground skidding of logs with lighter equipment or with horses. The recent development of a pulpwood market for hardwoods stresses the importance, again, of new methods for harvesting small-size timber—methods which do not damage residual trees. Logging methods, too, are related to the success of regeneration. There is evidence that the season of logging is related to the amount of brush versus preferred species which regenerate in coniferous stands.

After each cut there is a considerable quantity of wood—logging residue—which remains in the forest. One study has shown what this residue amounts to in kind and quantity and the type of equipment needed to harvest it economically. Another experiment concerns the problems of moving woods residue to a truck road at a cost that would be competitive with other sources of raw material. Studies of a portable wood chipper have proved its value for slash disposal under some conditions. The low production costs suggest that research on mechanical debarking equipment to be used at woods locations may permit use of wood chippers for production of high-quality chips for pulpwood.

Developing descriptive and meaningful quality standards for timber is a field all too long neglected. Tree and log grades are essential in understanding the great variability in timber quality. This is especially true in the northern hardwood type, which is the basis of the substantial hardwood lumber, veneer and plywood, furniture, and other wood products industries in the region. Wood quality considerations have become increasingly important as greater amounts of second-growth timber are harvested.

To provide descriptive grades, a quality classification based on exterior indicators is one of the objectives of the station's utilization research. Several studies have been established and others are being considered to determine how timber quality is affected by site, growth characteristics of the tree, logging methods, pruning treatments, and insect and disease damage.

In another field—the use of wood on farms is receiving attention. For several years cooperative studies have been conducted with the University of Minnesota on the use of preservatively treated wood products such as posts, poles, and native lumber. One pole-type structure in which several different types of preservative treatment were used has been erected. Various new designs in ventilation and wall and pen construction are also being tested.

In both the forest management and forest utilization research the objective is twofold: to make fully productive the more than 55 million acres of forest land in the Lake States, and to make the best use of the timber we now have. The success of research in aiding in this twofold objective will be reflected in the growth and prosperity of the forest industries and the forest communities of the Lake States region.

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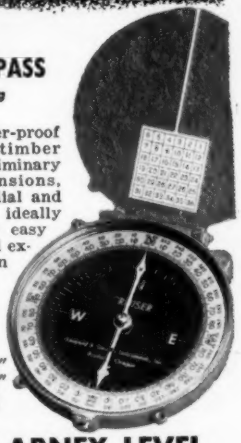

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The Future for Managed Forests

(*From page* 29)

agement, can be classified as well managed.

These two classes, however, represent only 40% of the total of our forest lands, so that it means that we must look to the balance of the acreage—the 296 million acres—for a major portion (the 60% portion) of our timber supply.

This 296 million acres is in small and medium private holdings. This acreage represents the so-called "farm wood lots." These lands, gentlemen, are, by and large, unmanaged lands.

The American Tree Farm System, sponsored by the American Forest Products Industries, is doing a magnificent job of education. There are currently 42 million acres of forest lands registered in the Tree Farm System. This is approximately 14% of the so-called small wood lot acreage. We must not be confused by this, however, because there is some overlapping in the industrial classification, and some industrial land is included in the Tree Farm System total.

As we look to the future, we must recognize the fact that too high a portion of the nation's wood supply must come from the small farm wood lot. It means that concentrated effort must be made by education, demonstration, and the assistance of private industy, and state and federal agencies to improve the management conditions of this type of forest ownership.

It is my belief that the major problem to be solved will be that of providing profitable cash market for thinnings and improvement cuttings of low grade material. This material must be removed to get these stands in a condition of good management. A farmer can sell one hog, one bushel of corn, one bushel of beans; but where does he sell one tree? That problem industry must solve.

If we assume that the indicated figure of 20 billion cubic feet of wood will be necessary for the year 2000 to take care of our population needs, we can recognize the size of the task ahead and plan accordingly. We must not fail to take into consideration that by that time depletion of other materials may have increased our need for wood, and the need for wood could well be urgent. Nor do I believe that in these figures we have made provision for the new products and new processes that may result from research.

I have said that wood is the mother of products yet unborn. What will be the raw material requirements of these products? It is to be hoped that many of them will require, as a raw material, wood which otherwise might be logging or mill waste. I feel sure that many new requirements will develop, for many are currently "in the make" in research laboratories.

Gentlemen, if we start right now, what kind and how large can we grow trees in 43 years? How optimistic can we be if under the most ideal conditions our major problem is volume?

Will it be profitable to fertilize? Will it be profitable to prune? Will there be hybrids? How big must the timber be?

I have said that time is running out—is indeed short—and that an over-all industry program is not only essential, but it is urgent.

We are talking about our nation and the needs of our people. We are talking about our children and our grandchildren and their economic well being. We are talking about something we can do something about if we have the will to do it.

Now, I have been talking about the wood business in the year 2000, and I recognize that any estimate of raw material requirements is a "guesstimate" because of the uncertainties involved.

In attaining our goals, we must start from where we now stand. Where do we stand?

Many of us are apt to be mislead by the fact that our present rate of productivity on our forest lands is such that currently growth and drain are, for all intents and purposes, in balance. We congratulate ourselves. We have attained balance. It seems like real progress, and it is, but we must not confuse quality and quantity. I know how bad some of this second-growth hardwood can be.

Softwood saw timber is being cut at a rate in excess of new growth. This is particularly so in the West, and generally so throughout the country. The fact that we are cutting our saw timber faster than it grows is not necessarily bad eco-

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nomics. If there is currently a demand that is unsatisfied, good business sense says satisfy it. The market may not be there tomorrow. I lived through 1929 to 1937. That is when we found out how fast timber could grow. This can well be good economics, for another reason, for much of our old-growth timber is over mature and is actually regressing rather than progressing.

It must be borne in mind that the deficit between growth and drain in saw timber is only one billion four hundred million feet in the last reported year of 1952. This is only 3½% of the total saw timber cut, and improved cutting practices and greater care in manufacture can easily wipe out such a small differential.

It is in the hardwood regions east of the Mississippi and in the South where our growth rate is the highest. Unfortunately, it is also true that in our hardwood stands the quality is the poorest.

Intensive management can materially improve these stands in the next 25 years. To accomplish this, two major problems must be overcome. First, a ready market must be found for the necessary improvement cuttings in order that these low grade hardwoods may be removed and the stands improved. The pulping of practically all hardwoods is helping to solve this problem. It is to be hoped that use of hardwood pulp may expand rapidly.

Secondly, the education of the timber owner in good forestry practices must be accelerated in the small farm woodlot group of ownership. The present acreage in the Tree Farm Movement is not enough. Here is a case where 4-H Forestry Programs are aiding the young to teach the old.

I like to think of the managed forests of the future, not in the light of the primary products currently familiar to us, such as plywood, poles, railroad ties, lumber and veneer. If we are to go on by the same old manufacturing procedures and merchandising methods, if we are to continue the balance of this century as we have conducted this industry through the past 57 years, the plight of the tree farmer and the managed forest is a sorry plight indeed.

I have said that people see what they are taught to see and think what they are taught to think. I have said that we must change the seeing and thinking habits of the great forest products industries.

The future of these great industries does not lie in the manufacturing and selling of the same old products in the same old way.

There have been improvements in logging practices and in materials handling. Our saw mills have been conveyorized, but except for a few frills, such as ball bearings and improved carriages, the band mill of today is essentially the band mill of fifty years ago. The saw kerf is about the same, the logs smaller, so proportionately the waste is greater. Sure, we talk about research to use sawdust, soil improvers, and the like—why not research to eliminate it?

We still make our boards in the same sizes and sell them on the same "come and get—take it or leave it" basis.

We don't ask our customers what they would like to have, in spite of market surveys indicating they don't like it.

The future of the forest products industries lies in research. Research in forestry — research in utilization — research in methods of conversion—research in products, in markets and in chemical utilization. This industry needs research at all levels. We need more research here at Madison in this great Forest Products Laboratory. Its facilities must be expanded. More research in educational institutions. Much more product research by individual companies and trade associations. We need much more market research. We must know why our products fail to meet market needs and correct it. And, above all, we need a training program for people to conduct research in wood.

Why has the nation moved forward so rapidly in the past 25 years? Why have so many markets for forest products been destroyed, in many cases, by inferior products? The research engineers —the "imagineers"—in the laboratories of the manufacturing industries of this nation have produced competitive products—competitive, if you will, for the American consumer's dollar, and they are pouring these products out in an endless stream. A new material has glamour.

Look at the fabulous growth of the plastics industry. It has glamour. Many of the synthetics have a peculiar affinity for wood fiber, but the wood industry is not technologically prepared to take advantage of this.

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All of this is happening around us and yet, as an industry, the great forest products industry has been unable to overcome its own inertia and take advantage of the greatest basic material of all—wood—and combine it into new products.

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on page 53

The forest products industries employ one and three-fourths million people out of a total working force engaged in manufacture, of seventeen million people. This is 10% of the total. From the standpoint of employment, we are a major industry.

Where do we stand in research? Let us look at what has happened here. In 1945, industry and government spent one billion five hundred million dollars in research. This sum has been increasing at the rate of almost one billion a year since that time. This year, the National Industrial Conference Board reports seven billion dollars spent in research and development. There are approximately four hundred thousand scientists, engineers, and supporting personnel employed in this phase of industry.

Is our product so good we do not have to improve it? Do your customers say so? Are our markets increasing beyond our capacity to handle them? Are our profits so great we have no worries of the future? Or, are we just asleep?

Out of this seven billion dollars spent in this country by the American industry and government in research, the best figures I can gather indicate that the entire forest products industries, including the pulp and paper industry and government, spent the small sum of sixty million dollars in 1956. Dr. Hall says I am high. If anyone has more accurate figures, I would like to know them, for I do not believe that even the National Research Council has accurate figures on our industry.

I do not believe that a comprehensive research program could be under way in this industry in less than five years. Research is not just spending dollars. Research is the product of men's minds, trained to imagine, trained in technology and how to apply it, men with vision and imagination.

I will say this, that, if this industry could intelligently spend a billion dollars in research in the next five years, there would be no need to worry about ever cutting saw timber, for you would squirt better boards out of a nozzle on an extruder than were ever sawn from a log. They would be dimensionally stable, fire resistant, and the length would be as long as you wanted to make it.

Framing lumber, as we know it, is destined to disappear in the construction field. Stressed-skin particle boards made from low-grade woods will revolutionize home construction. The need for board lumber in the construction industry will decline.

You would not need to worry about adhesives, for you will probably remove lignin from fiber and replace it, using solvents. The natural adhesives of wood removed, replaced, and possibly fortified with chemical extractives from bark.

Wood, the basic material, would begin to come into its own. . . .

Things are happening in American industry that must be considered part of the Industrial Age. Whether we approve or not as individuals, industrial consolidation is the order of the day. The capital requirements in the basic industries are so great for modern plant and equipment that industrial bigness is almost essential for financial reasons alone. In many cases, this integration is both the cause and result of research.

Through consolidation and integration have come conservation of resources, the ability to convert all of a material into products or by-products. This is so in the meat packing industry, it is so in the oil industry, and allied chemical industry. It will be so in the Forest Products Industry. Consolidations and mergers are already well under way. I dare venture that within a decade the major portion of the nation's demand for wood, regardless of form, will come from an integrated operation, based largely on fiber.

Such an integrated Forest Products Industry will be capable of converting the nation's wood supply into a vast category of products calculated to produce the greatest dollar yield per acre. From such an integrated basic operation will come board lumber, veneer, plywood, all categories of fiber products, chemical and moulding compounds. The secondary converters of wood, the furniture manufacturer, the cabinet maker, will have certain and assured sources of raw materials.

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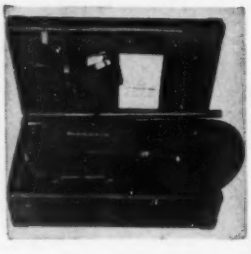

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Atlanta Watershed Congress

(*From page 5*)

ments, recreation, fish and wildlife, and agriculture during the second session of the program. Kenneth S. Watson, waste consultant for the General Electric Company and vice president of the Federation of Sewage and Waste Associations, revealed that industry can be expected to require 60 per cent of the national water requirement by 1960, a rise of 14 per cent over present calculated demand. Major industrial water uses, he said, are for cooling, processing, steam generation, and sanitation.

Watson introduced a view not found in previous watershed congresses when he described industrial efforts to make better and more efficient uses of water. A program put into use at GE plants, he claimed, has resulted in cutting water consumption by six billion gallons annually with savings of more than $600,000.

Municipal water demands, said Paul Wier, general manager of the Atlanta Water Works, can be satisfied by large-scale water storage, more intelligent water use, and soil and water conservation in the headwaters. Wier's call for coordinated planning was supported in part by the next speaker, Eleanor E. Hanlon, assistant professor of geography at Syracuse University, who also urged that the coordination be integrated regionally, and that emphasis on youth education and basic research be accelerated.

Ross Leffler, recent appointee to the newly created office of Assistant Secretary of Interior for Fish and Wildlife, outlined the role of federal and state wildlife agencies in the watershed program. Hunting and fishing could be enhanced nationally as an important recreational outlet, Leffler stated, if wildlife potentials are given enlightened recognition in agricultural land-use programs and with more promotion and push for this needed recognition by hunters and fishermen on the local level.

California Assemblyman Francis C. Lindsay looked upon irrigation as the fourth and perhaps final step in the effort to increase per-acre yields of agricultural products. Mechanization, hybridization, and fertilizers no longer can be expected to account for increased yields, Lindsay observed. More widespread irrigation and the provision of water in the amounts and at the times when it is most needed will be a boon to agriculture, the westerner claimed.

Lindsay also looks for mounting interest in "water conservation for all uses" rather than for the long-popular flood control aspect alone. He predicted a headlong clash of agriculture and industry for water, particularly and perhaps at an earlier time in the West where the water appropriation doctrine is supreme.

The second day of the meeting was given over to a well-timed and fast-moving tour of the Noonday Creek subwatershed of the Coosa River near Atlanta. Demonstrations and lectures at several stops included farm soil and water conservation planning, woodland conservation, wildlife conservation, floodwater retardation in small dams, stream channel improvement, agricultural research, and downstream flood control.

Foresters from the U. S. Forest Service, the Southeastern Forest Experiment Station, and the Georgia Forestry Commission gave a well-

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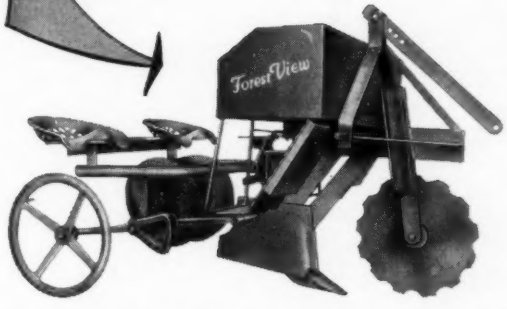

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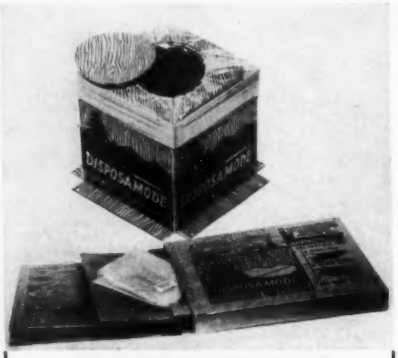

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delivered and graphic explanation of how different aged forest stands contribute to controlling water run-off and soil erosion. Charts were used to show how four stands, ranging from five to 15 years old, progressively improved soil erosion retardation and water absorbency capacity through the build up of litter, humus, and soil porosity.

The nearest thing to a live demonstration of the effectiveness of a developed watershed in handling record precipitation and run-off was given the conferees on the final day of the meeting by eye witnesses from Texas, Oklahoma, and Kansas. The spokesmen, representatives of the U. S. Soil Conservation Service and two private citizens whose property is within developed watersheds in that region, related the events this spring when record rainfalls posed a danger for human life and property. In every case, the developments functioned perfectly, collecting waters and paying them out into stream channels through emergency spillways and draw tubes, holding back the crest and preventing the burgeoning streams from reaching a dangerous flood stage.

Paul Hardin, secretary of the East Fork of the Trinity River Watershed Association in Texas, said an overall project, "functioned in every way beyond our greatest expectation. . . . If there were ever any doubts, they have now been dispelled."

"Meeting Water Problems in the Southeast" was the closing session theme on the last afternoon. Topics included water supply and demand considerations, what the states are doing in water policy and legislation, land treatment as a substantial part of a watershed program, and the role of advisory committees in developing and carrying out state water policies.

The annual banquet speaker, Ervin L. Peterson, Assistant Secretary of Agriculture, delivered a well-received address which centered squarely on the national water problem, and the attendant facets of agriculture, forestry, range management, and general land use which along with water, enter into the overall conservation picture.

The Secretary posed more questions than he attempted to answer, a not unusual situation because those in attendance, while aware of many aspects of water conservation, appreciated Peterson's broad, thought-provoking and comprehensive discussion of the overall national water problem as viewed by a high administrative official.

"Water is the nation's number one natural resource problem," the Secretary said. "This is so because it is part of every other renewable natural resource possessed by this nation.

"In the management of forests, both public and private, the effect of management decisions on water yield from watershed lands grows in importance. In the management of grazing lands, so important to the western livestock industry, the effect on forage production of competing shrubs and plants which use up the limited moisture available for plant growth is resulting in extensive efforts by operators to control such competitive growth.

"Some of our intermediate and major cities have acquired extensive holdings of land to either enlarge or protect their water supplies."

The inseparability of land and water resources, with specific reference to the growing recognition and practice of resources conservation in Georgia, was explored by special luncheon speaker U. S. Senator Herman E. Talmadge. The senator cited "an awakening" interest in overall conservation in the Cracker State, and listed the various programs that have been initiated to bring about better resources management and development.

It must have been gratifying to the two dozen large national organizations that co-sponsored the 4th National Watershed Congress to hear the meeting praised by many of the distinguished speakers.

"The National Watershed Congress," Secretary Peterson said, "represents ever widening recognition of the significance of water in our national life. I congratulate and commend the organizations sponsoring the Congress for the very real contribution they are making toward public understanding of the problems associated with water."

Because of the many representatives of water-use groups at this recent meeting, it is believed that there will be a multiplying educational impact as the watershed information and ideas developed are communicated among the memberships of the organizations and groups represented at Atlanta. This is all to the good, of course. All groups and individuals interested in any manner in soil and water resources management should be attending the National Watershed Congresses.

California Land Ownership Report

(*From page* 26)

are indispensable elements in modern civilization. 'Multiple-use' is commonly regarded as a cornucopia from which will flow unlimited supplies of everything we need, with little appreciation of its limitations. Not all uses are compatible. Even with compatible uses, as we increase the yield of one product or service, we often decrease the yield of others. In some places if we want more water, we may have to grow less timber.

"Ownership of land resources controls their management. It is therefore essential to know what results may be expected from different forms of public and private ownership. But results can be evaluated only by comparing costs and returns —direct and indirect, tangible and intangible. Such comparisons pose problems for the study of which we do not yet have reliable techniques. A simpler but highly important task is to determine the influence of intermingled ownerships on the intensity of management, and to effect the blocking up of ownerships where this seems desirable. Public ownership raises difficult questions as to financial responsibility of the public owner to the local community."

What Next?: "The first step in solving the many problems of natural-resource management is for all owners to make more effective use of the information already available. In general, knowledge is far ahead of practice. The next step is to conduct the studies necessary to expand existing knowledge as to the ownership patterns, management techniques, and public policies that will give the most satisfactory results from the standpoint both of the owners and the general public.

"Three things are certain— (1) That far more intensive resource management by all classes of owners will be essential to close the prospective gap between needs and supplies, (2) that such management is dependent on increased and continuous study, and (3) that the results must find practical application.

"The fact that all resource problems are interrelated points to the need for some a device by which the combined efforts of the landowners and managers (both public and private) and of the general public can be mobilized to seek their solution. The most promising approach to this goal is the creation by the Legislature of a Natural Resources Council consisting of qualified representatives of the state and federal agencies, the private interests, and the citizenry of the state. The duties of such a council should be:

1. "To identify, stimulate, and coordinate studies of current problems connected with the ownership and management of natural resources;

2. "To advise the Legislature, the governor, and the various officers and interests represented in its membership with respect to natural resource problems, administration, and management; and

3. "To facilitate contacts and promote cooperation among the groups and interests represented in its membership.

"The need for prompt action is urgent. California now has ten more residents than when I started to read this statement. It has no more land."

Bonnie Oaks Tree Farm

(*From page* 23)

the Tree Farm Program started late in Wisconsin—not until 1954—which was due in part to the fact that the industry already had a going program—"Industrial Forests"—limited to ownership of 1,000 acres or more in size. More recently the industry decided to launch a recognition program for all ownerships and today 837,000 acres of Wisconsin woodlands are under the Tree Farm banner.

Others who received Tree Farm certificates at Bonnie Oaks were: Forrest Marquart, Markesan; Ray Ciula, Mosinee; Leo Kautz, Clintonville; Leonard Kwarciany, Mosinee; Gordon Kummer, Milwaukee; Henry Check, Rosholt; E. J. Brauner, Black River Falls; A. M. Schlaak, Milwaukee; Marvin Dumman, Algoma; and L. G. Samsel, Racine.

James C. McClellan, chief forester for American Forest Products Industries, Inc., the national sponsor of the Tree Farm Program, closed the dedication ceremony.

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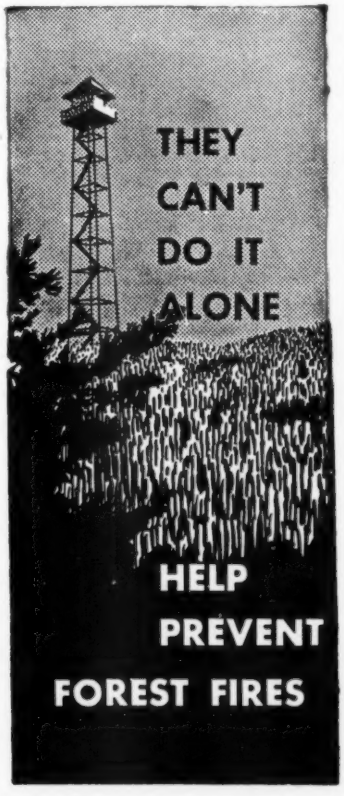

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Lake States Forestry

(*From page* 30)

forest economy will rest to a considerable extent on the accomplishments of research. Research accomplishments, particularly in the pulp and paper industry, have given us what we have today. What we will do tomorrow, and whether we can successfully compete with the South and West, will be even more dependent on research. Dr. C. F. Kettering's definition for research is very applicable to this situation—"Research is prospecting, it is an organized attempt to determine what you can do tomorrow, when it is probable that you will no longer be able to do what you are doing today."

2. *Utilizing fully what we are growing.* The more complete utilization of what we are growing poses equally difficult problems. The progress made has been primarily the result of expansion by the pulp and paper industry and its ability to utilize more aspen and hardwoods. A tremendous quantity of such raw material is available to the pulp and paper industry for added expansion, if it can develop successful utilization processes and market the products.

However, it is questionable whether we can expect the pulp and paper industry alone to utilize what is growing and will be grown. New utilization processes and new industries are needed to take over where pulp and paper, hardboard, particle board, posts and poles, furniture, and other forest products industries leave off. Here again, the key is research, research by industries, the Forest Products Laboratory, and by other interested and qualified public agencies and institutions.

3. *Producing Other Products.* Too frequently, timber products are considered the only products of our forest lands. Those responsible for forest land management have too frequently failed to take credit for the recreational, wildlife, and water-producing capabilities of the more than 50,000,000 acres of the Lake States' forest resource. These are forest products, just as certainly and importantly as is timber. They are important forest products that should be claimed and recognized.

There have been and will continue to be conflicts between the objectives of maximum timber production and maintenance of wildlife and population and recreation values. There will need to be compromises and it will require much added research to determine how far we can develop one resource without damaging others. We have a sufficient forest land resource to produce several

times the present quantity of timber, to support important wildlife populations, and service an ever-growing recreation industry. Certainly the best insurance for forest wildlife today is a flourishing and expanding products industry. Without such a flourishing and expanding industry, wildlife habitat on much of our forest land resource will deteriorate even further. From what the writer has seen of this close relationship in Wisconsin and Minnesota, it would appear possible to develop some type of formula that would show the quantity of deer produced per ton of paper or cord of pulpwood harvested. When computing forest land income we need to add reasonable amounts for the non-timber products—wildlife, recreation, and water.

4. *Stimulating Industrial Forestry.* The development of industrial forestry nationally in the past 10 years has been the key unlocking the straight jacket forestry was in for almost a half century. Much of the progress of forestry in the South and West has been due to the growth of industrial forestry—the ownership and management of forest lands by industry. In the Lake States we have witnessed some growth of industrial forestry but it is still a rather anemic relative of the robust South and West. In addition to the natural handicaps of industrial forestry in the Lake States, we have imposed a whole series of man-made handicaps; high taxes, too much public ownership (58 per cent of the total forest lands in Minnesota are publicly owned), subsidized agriculture, and inadequate research. Increasing amounts of industrial ownership and management are a must if we are to keep pace with the South and West.

5. *Improving Productivity of Small Holdings.* The third of our forest land in farm woodlands is particularly nonproductive. A gradual small improvement is evident today, but this is far too small and slow. We simply do not have the keys to this problem. This is without question the toughest forestry problem of the Lake States as well as nationally. There is no single solution or answer. If research needs a challenge, it has one in the farm forestry field.

Klamath Hearings in Oregon

(*From page* 12)

dation provided for in the Klamath Indian Termination Act, Public Law 587.

Only two witnesses presented specific alternative proposals to the federal purchase bill. They were the Western Forest Industries Association and the Weyerhaeuser Timber Company. The WFIA, an organization of lumber producers who are largely dependent on federal timber supplies, made a statement at Klamath Falls which indicated that outright federal purchase is its first choice. George Weyerhaeuser proposed an alternate which would give private industry first chance at the timberlands under a "sustained yield covenant" in the deeds. If this failed, the alternative would permit federal purchase.

Weyerhaeuser, whose proposal drew the most comment of any witness, and the majority of the others who testified asserted that disposal of the Indian timber under the present provisions of PL 587 would be disastrous to the economy of the Klamath Basin—and that the effects of the liquidation would be felt in a far greater area.

Strong support for outright federal purchase came from the Management Specialists who are conducting the termination of the physical assets of the Indians, business and civic groups of the Klamath Falls area, an Interim Committee on Indian Problems created by the 1957 Oregon Legislature, the Oregon chapters of the Izaak Walton League and the Audubon Society, local outdoor organizations, and a number of individuals. The National Lumber Manufacturers Association cancelled a scheduled appearance at the last day of the hearings. NLMA indicated that it would file a written statement before the record is closed on November 1. The Western Pine Association apparently did not schedule an appearance.

Boyd Jackson, representing one of the two factions within the Klamath Tribe, said his group favored federal purchase. If this proves impossible, he said he would like to see an extension of the liquidation period to as long as 20 years. Wade Crawford, leader of the other tribal faction, said the Indians would get more money from small, highly competitive sales.

The hearings which were conducted by Senator Neuberger are part of an eleventh-hour attempt to revise the pattern established in 1954 when Congress passed the Klamath Termination Act. Senator Neuberger has admitted that it will take a "legislative miracle" to get a federal purchase bill through Con-

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gress. In Oregon this fall, the Democratic senator suggested that the state should also consider purchasing the reservation in the event that his bill fails. State officials, however, do not believe this would be financially possible for Oregon.

The termination act provided for ending federal supervision over the property held by Klamath members individually and as a tribe. The termination of supervision over the allotted lands and other personal affairs of individuals is being conducted by the Bureau of Indian Affairs, but the act provided for a contract between the Secretary of Interior and an independent group which is known as the Management Specialists to accomplish termination of the tribal property.

This tribal property consists of some 800,000 acres, the bulk of which is in a well-managed stand of ponderosa pine and the rest in marshes and grazing land. Although the reservation has been logged steadily since the early 1900's, there still is more than 4 billion board feet of merchantable ponderosa and associated species on the tribal lands.

The basic steps—and the current status—required of the Management Specialists by their contract are:

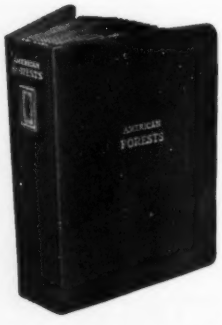
1. Appraise the tribal property. A tentative appraisal was completed last spring by Western Timber Services under a contract with the specialists. It was undergoing revision this fall and was to be returned to the specialists in late October. Informed estimates of the "book value" which will be placed on the reservation lands indicate the tribal property will be valued at around $115 million.

2. Conduct an election among the Klamaths in which they will choose between taking their per capita share of the tribal property in cash and withdrawing from the tribe, or remaining in the tribe under a management plan. The election has not been officially announced. However, it is expected to come up within the next two or three months. Around 70 per cent of the Indians are expected to withdraw.

3. Set aside enough of the reservation to equal the book value shares of the members who choose to remain and sell the rest at the best possible price. This "best price" requirement is generally conceded to preclude the sale of large blocks of timberland which could be expected to be put under some form of permanent management. There is no guarantee that the tribal members who withdraw will get anything approaching the book value of their shares.

4. Develop a management plan under which the remaining forest and range lands can be operated for the benefit of those who elect to stay with the tribe. A tentative management plan has been developed. It was made available to the Indians early in September. The plan calls for the creation of a private trusteeship. In other words, Bureau of Indian Affairs supervision will be replaced by a similar arrangement with a private management group. The final version of the plan cannot be worked out until after the election is held.

Originally, enough tribal property was to have been sold by August 13, 1958, to pay the claims of the withdrawing members. Last summer, Congress delayed the final pay-off until 1960. In effect, after taking care of the necessary preliminaries to the sale, the Management Specialists would have less than two years in which to sell a volume of timber equal to about seven times the amount used annually in a three-county area around the reservation. The volume expected to be sold is equal to more than 10 times the pres-



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ent annual consumption of the mills of the Klamath Basin, the traditional market area for reservation timber.

The consequences of this type of liquidation on both the local economy and on the Indians have raised the hackles on the necks of those who have studied the problem.

The Management Specialists, themselves, were the first to assert that this portion of the law needs amendment. At the hearings this fall, T. B. Watters, chairman of the specialists, said that in his opinion no acceptable alternative to federal purchase has been presented. The specialists originally proposed a federal purchase amendment early in 1956. Secretary of Interior Seaton announced early in October that the department was studying this proposal and would report on it by the time Congress convenes.

Another witness at the hearings, C. B. Stephenson, president of the First National Bank of Oregon, told the subcommittee in Portland:

"The impact of this liquidation (under PL 587) would have a very serious effect on the economy of Oregon. If the law is carried out as it is written, it would disturb our markets and it would be a violation of the sustained yield concept."

Stephenson said, "I have not been able to conceive any way in which private enterprise can meet the objectives" of maintaining sustained yield management of the forest and at the same time giving the Indians full value for their timber. The bank president added, "I can think of no alternative but federal purchase and management of the lands by the U. S. Forest Service."

A newspaper publisher who has expressed concern since the beginning of the termination program stated the terms of PL 587 make it impossible to meet both the requirements of the Indians for the highest sale price and of the economy of the adjacent communities that the timberlands be operated on a perpetual basis. He is Robert W. Chandler, editor and publisher of the Bend *Bulletin*, which serves the central Oregon area just north of the million-acre reservation.

Chandler pointed out that given the number of capable foresters available even under a crash program for such work it would take ten years to sell the timber in an orderly manner, rather than the 18 months or more that will be available. The volume to be disposed of is equivalent to a 10-month cut of the entire four-state Western pine region, Chandler said.

"Public ownership is the last resort," he said, "but it is only through public purchase that the objectives of sustained yield and the rights of the Indians can be met."

State Representative Sam Wilderman, a member of the Oregon State Legislature's Interim Committee on Indian Problems, told the Senate subcommittee that S 2047 had received the unanimous support of the five members of the committee who had attended the hearings in Klamath Falls. "The committee will work toward the passage of the bill," he said.

Testimony of representatives of the outdoor groups was directed largely toward federal purchase of the 88,000 acres of marshland. These marshes are primary resting areas for migratory birds. Rollin Bowles, representing the Izaak Walton League, said the league would have no "hard stand for federal purchase" if it could be assured that private purchasers would protect the water resources.

However, he asserted, liquidation under the present terms would bring "only a short term cut out and get out."

"The purchaser," Bowles said, "would have no choice but to borrow and then liquidate his timber as rapidly as possible to keep the interest from eating him up. Under the pumice soil conditions on the reservation this would mean erosion of the worst sort and eventually drying up of the marshes."

Senator Neuberger said that the hearing record would be kept open until November 1 for additional statements. Members of his staff indicated that expressions of opinion received after that time would be considered separately by the subcommittee.

Integrated Utilization at Crown Zellerbach

(*From page* 34)

fir. Some 20,000 acres of age classes 35 to 70 years old are being thinned at 3 to 5 year intervals. The products are pulpwood, sawlogs, poles and piling. Several thousand acres have been thinned, some for the second and third time. The second and third cuts have been approximately equal to the growth,

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and have been taken from poorer quality trees to favor growth of better trees. . . . Thinning allows utilization of nearly all of the wood produced by the land rather than just that which is left at the time the stand is due for the final harvest and replacement. Our studies indicate that the usable wood yield made possible by thinning can be increased as much as 70% during a complete life cycle.

A fairly recent addition to our kit of management and utilization tools is an isolated barker-chipper installation on the Columbia River in southwestern Washington near the boundary between our Cathlamet and Pacific Tree Farms. This chipper utilizes wood down to 3-inch diameters and short lengths which cannot be handled economically, nor in sufficient volume, at our main pulp mill breakdown plants. This $275,000 installation includes a 26-inch Swedish Cambio mechanical barker, an 84-inch Hansel horizontal feed chipper and facilities for log and chip handling. Chipping capacity is about 100 cords per 8-hour shift. Chips are conveyed by blower and belts into barges for towing to our pulpmills on the Columbia River at St. Helens and Camas, which are about 70 and 110 miles from the chipper site. Small, short-length pulpwood logs with many potential sinkers cannot be economically transported from this area to our mills, but river barges of pulp chips can. *The barker-chipper installation thus makes practical the utilization of previously unused small material from thinning, prelogging and relogging on company lands and from adjoining forest lands in other ownerships.*

The wood Crown Zellerbach uses annually from salvage, mill residuals and thinnings is equal to the yield from more than 6,000 acres of timber.

About one-third of our current mill pulpwood supply comes from outside sources in the form of chips from sawmill, veneer and plywood residuals. Substantial volumes also are acquired by exchanges of peeler and lumber logs for pulplogs and by outright pulplog purchases from independent loggers cutting both public and private timber.

I am sure you realize by now that I have been talking about integrated forest management and forest utilization without actually using those terms. There are many definitions of integrated utilization. The best ones include at least three factors: (1) using so far as economically possible all portions of the tree and all the wood on each acre; (2) putting each utilized portion of the tree to its highest value use; and (3) managing the basic resource—the forest soil—to produce maximum volumes of the best qualities of wood on a permanent, economically sound basis. Sustained yield production is essential, but only a partial goal. Our timberlands must be managed to produce to *maximum* sustained yield capacity. This production must be of the highest quality which can be economically obtained.

Now, let's scan the Crown Zellerbach operations to see what management practices contribute to full harvesting of all the wood which has been produced by each acre of forest land and full utilization of all the harvested wood. First, there is the salvage from relogging of areas cut by previous owners and from dead snags. This work has been completed on most of our lands. Salvage logging under old-growth timber and prelogging of small trees as separate operations ahead of the main cut gives a 10% higher wood yield than a combined single operation, and utilization is to pulpwood sizes, not minimum sawlog sizes. Firwood, or woodlogs, generally an "unmerchantable" grade left in the woods, are used for pulp and high value specialty products such as cabinet wood and cooperage.

Two developments in the veneer and plywood field contribute to fuller utilization. The first, developed in conjunction with the U. S. Plywood Corporation, consists of materials and equipment for coating lower grades of veneer to fill irregularities and knot holes. This process is followed by overlaying with a weatherproof, plastic-impregnated paper called CREZON which was developed by our Central Research Department at Camas, Washington. The result is a very high grade plywood, superior for exterior uses such as boats and buildings, or with various combinations of stain, color and embossed designs for decorative interior use.

The second, developed in conjunction with Simpson Timber Company, is the use of gummed paper tape on the edges of freshly peeled veneer to prevent edge splitting during drying and gluing, thus eliminating a significant proportion of reject losses.

None of the activities we have been considering just happened of their own accord. All of them were direct results of advanced planning backed by a great deal of work and investment. We never lose sight of our basic forestry objective. We must manage our lands to produce the maximum volumes of the highest qualities of wood on a permanent and economically sound basis. That includes both the wood to be grown in the future and that which exists on the ground today in the form of green trees or salvable dead wood.

Concurrently, forest protection from fire, insects, disease and windthrow is essential. This involves well planned and advance construction of roads, water storage, firebreaks, lookout towers and communication systems. Tools, hose and trucks must be purchased and the entire organization trained to act quickly and efficiently in an emergency. Detection systems must be set up and prevention systems organized. Finally, silvicultural practices must be designed to minimize destructive effects of fire, insects, disease and wind if or when they occur. Every piece of usable wood lost to fire, insects, disease or weather reduces our total forest yield.

The planned timber harvest requires a careful coordination of forest inventory and management plans with engineering, equipment and financial programming. The harvest is not possible, for instance, until after the roads are built. Roads represent a large capital investment—more than $100 for every acre served. We plan our road *systems* to give quick, flexible coverage for protection, salvage, thinning and the cutting of deteriorating old-growth. Therefore, a large investment in forest roads must be made far in advance of final harvest.

At this point we should consider yet another vital link in the chain of integrated management and utilization: the customer—or consumer—as economists say. There is no point in forest management to maximize wood production by the land or in harvest operations to bring out every potentially usable piece of wood unless someone wants it when we get it out. Our Timber Department's largest direct customers, of course, are our own mills; but indirectly the people who use the products of these mills are also Timber Department customers. The mills will use any wood which can be economically converted to high quality, saleable products; and we will bring out of the forest any wood which is worth as much at the delivery point as it costs to get it there, allowing a small profit. . .

In our laboratories we seek ways to make the same or better products from different kinds or qualities of woods and better ways of making the same products from the same kinds of wood. Uses and markets must be found and developed both for new products and existing products. Large amounts of planning, work and investment are necessary to achieve complete and integrated utilization.

The basic resource we are considering is the forest soil itself. It is the objective of our forest management to produce the greatest possible volume and value of wood from each acre of this resource over the long run, and I think the significance and desirability of that goal are obvious.

To that end, our own research staff and others are continually making soils studies both by physical and chemical analysis; and ultimately we hope to learn whether there are any nutritional deficiencies which can be supplied to the soil for acceleration of tree growth.

A Lake States Sawmill Meets Utilization Problems

(*From page* 35)

as a stabilizing factor in our timber supply. The harvest of timber from these lands would be used to even out fluctuations in the source of raw material from the small private holding which would constitute the backbone of our supply. We set as our goal the purchase of one thousand acres per year. This was to include both immature and mature timber. We originally planned that this acquisition program would continue for approximately twenty years, and would result in a total acquisition of approximately twenty thousand acres.

For the second part of our program we decided that our major dependence for raw material supply was going to be placed upon the many small private timber holdings located within practical operating distance of our mill. Individually, many of these small holdings were of relatively little importance, but taken collectively, they constituted a major source of timber. Essentially, it was on these holdings that we were staking our future in the lumber business.

We had our plan but it was now necessary to initiate a program to insure our supply from these small timber holdings. These were private lands not controlled by us in any way, but it was on these lands that we must depend. We had to develop a program that would insure us a continuous flow of timber from throughout this area. One that would not only remain stable, but that would continuously increase. The first approach which we quite naturally considered was developing long term contractual arrangements with as many of our prospective suppliers as possible. This for the purpose of discussion we can term the legal approach. It has been much discussed in other parts of the country and at first glance seemed to have much to offer. As we examined this more closely, however, the disadvantages became more evident. This was the cold calculated way of doing it. To a certain extent it was forcing compliance to a pattern. Somehow this did not seem to be consistent with what we were trying to do. We checked into similar arrangements that had been tried in other industries and found that they developed many obstacles. Long term contracts are subject to many variables, such as fluctuating prices, varying specifications, changing ownership, economic pressures on the owner, and many other unforeseen factors that are bound to make themselves known over the years. This appeared to us to be a very shaky foundation on which to build our future. We wanted to establish and maintain a more substantial relationship with our suppliers. One based on mutual understanding and confidence, won from service and fair dealing, and thus develop a system that would be flexible enough to fluctuate with changing economic conditions. It is an axiom in business that any good deal must benefit both parties. We wanted an arrangement whereby both our permanent suppliers and ourselves would profit over the long period of time. We would supply the continuous and reliable market and the land owners would provide the continuous supply of raw material. Part of our plan was to help the small land owner grow more and better timber, and to make it profitable for him to do so. Activating our plan required close contact with the land owners within the practical working area of our plant, we had to aid each individual owner in the proper handling of his timber property. Our goal was to obtain approximately 75% of our total annual log requirements from these privately owned lands.

Contracts were not limited to those individuals whose timber was ready to harvest. We were equally interested in every land owner possessing timber in all stages of development. Our concern had to be for a timber supply five years hence, ten years hence, and indefinitely into the future.

The system had to help him get the maximum yield for his benefit as well as ours. In order to be of service to the landowner we established the policy of offering him a market at fair prices for all the products which might be removed from his woodlot in any one cut. If we were not able to use all of the materials in our own operation we assisted him in marketing elsewhere such by-products as might necessarily develop. It was imperative in setting up the mechanics of this system that we firmly establish a business relationship with our suppliers on a sound basis founded upon mutual confidence and benefit. Without this, any amount of planning on the mechanics of the operation would be futile. We had to firmly establish in the landowners mind that we were interested not only in his immediate merchantable timber, but, that we were desirous of continuously buying from him, and that in return we would provide him with a stable market on which he could rely. Anything short of this would have offered him little incentive to devote his lands to the sustained production of timber. This constituted the program we evolved, and which we proceeded to carry out.

The plan we have pursued in working with the land owners has also, in our opinion, been very successful. This is evidenced by the fact that the number of individual contributors has steadily increased. During the past five years the number of participants working with us has increased by approximately 75% This increase has occurred not only as a result of our direct contact, but has just naturally snowballed as one landowner told another of his satisfactory dealings with the company. As a consequence our working area has also continued to grow. We fully expect that the total number of land owners within our expanded working area who will be working with us will increase at even a higher rate during the next five years. A point that should be made here is that though our total volume from this source has increased, it has grown mainly by reason of an increasing number of landowners participating. Actually, the volume from many individual units over the interval of time has often declined. This reflects a marked improvement in forest management practices. The cuts are lighter and more frequent, consistent with desirable cutting practices. We have been able to adjust our operations to handle these reduced cuts from the individual properties, even though at first glance this would appear to result in increased logging and hauling costs. To a certain extent it does increase the costs, but we feel that these are more than offset by the advantages gained in improved forestry practices. We will receive a better quality of logs and eventually a greater volume for our future supply of timber. We want to again emphasize that our motives throughout this entire program have not been altruistic. We feel our civic responsibility deeply, but irrespective of that, as I previously told you, everything that we do has to be a paying proposition. Occasionally we have had to back up and make changes in our methods, but basically, we have not deviated materially from our original plan and we have found that the results have been profitable. True, we have had to make large investments of company funds, whereas, it probably would have been more comfortable to take our profits, but by doing it this way we feel that as owners of the company we have helped the community, which is made up primarily of our employees. We feel that we can look forward to increasingly profitable operations that will continue into the future.

Better Management Through Pulp and Paper Research

(*From page 39*)

ample of how research benefits forest management. It was essential that technologies be developed and put to use as quickly as possible because these hardwoods cover so much of the area of the country. They are growing much faster than they are being used in so many areas, and so much of the wood is of such low grade that we can visualize its use only in terms of fiber, chemicals, or fuel.

Hardwoods are converted to pulp by most of the traditional pulping processes. Fortunately, they also respond very well to the newer pulping processes which resulted from laboratory and pilot plant studies. Consumption of hardwoods is now about six million cords per year, which is equivalent to about 17% of the total pulpwood consumption. The proportion consumed in each process is approximately as follows: soda, 20%; sulfate, 30%; sulfite, 10%; groundwood, 10%; semi-chemical, 30%. This does not include small amounts pulped by by the chemigroundwood and cold soda processes . . .

One of the newest major fields of pulping research is in making groundwood-substitute pulps from hardwood or softwood chips, rather than from bolts of wood. For years, groundwood has been made from only a few wood species of the proper shape and size for holding against a grindstone. The grinding of dense hardwood species in this manner has not been very successful excepting by means of the chemical treatment of bolts of wood as detailed in research studies at the New York State College of Forestry. The making of groundwood-type pulp from chips is a development of significance to the forester for obvious reasons . . .

A key factor in evaluating such new processes when they are created lies in a recognition of product possibilities. For example, chip-groundwood pulps would seem to be partial substitutes for groundwood, which they are, but research has also shown that they can be partial substitutes for long fiber pulps. They are, therefore, promising for many printing papers, including newsprint . . .

In the field of insulating board and hardboard, experimental work has shown that hardwoods of both low and high density can be more widely used than they are at present. Pulps for these products can be prepared from wood by processes involving steaming, grinding, semi-chemical cooking, attrition-milling, defibrating, exploding or mechanical breakdown of raw wood.

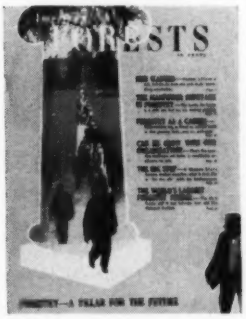
As our technology permits us to accommodate more and more species, we should give greater attention to density of the wood substance, and think and talk more in terms of tons of fiber than in cords or lumber-scale equivalents. The density variation among species can be large, especially among hardwoods. When density of wood is coupled with pulp yield due to species and pulp yield due to the process, the differences become extreme . . .

Pulp and paper research is a continuing project that will get more involved than it is now due to the great number of species, processes, and special situations that need evaluation in terms of ever-changing end products. A general problem receiving much attention today and one of importance to foresters is to uncover processes that will permit smaller pulping units with low capital cost in locations where forest utilization problems are most painful. This is especially important in some hardwood areas because of the low volume, low quality, and dispersed nature of the stands. The newer pulping processes outlined here are a great step in this direction. Another example is the development of methods for drying and baling or shredding of pulp to prepare it for shipment without the usual costly pulp driers.

The entire subject of continuous pulping has never been more interesting or promising. Perhaps the outstanding problems in this field are those relating to equipment and machinery for continuous digestion. While pulp production by continuous or batch methods may be a 50-50 choice to the papermaker or the customer, to forest management people it promises greater flexibility of raw material size and shape, since continuous digesters are not so susceptible to liquor channeling problems as large batch digesters. Another field that needs much more attention is that of the chipping of wood and separation of wood from bark and extraneous material prior to pulping, so that more low-grade material can be used.

Basic studies on the kinetics and mechanism of pulping reactions should continue. A better knowledge of fundamentals of wood structure and its chemistry will trigger the more practical applications. There must be even better ways than those now in use to separate wood into its components without altering each component much in the process. It is a fair assumption that wood components such as lignin, liberated from wood by more gentle means, would have a greater usefulness than we know today.

A CAREER REPRINT FOR PROSPECTIVE FORESTERS



The Campaign of The American Forestry Association to encourage outstanding young men to adopt forestry as a career has resulted in the publishing of a 32-page Career reprint, containing among others the following articles from the MARCH issue of AMERICAN FORESTS Magazine:

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Feature Photo of the Month

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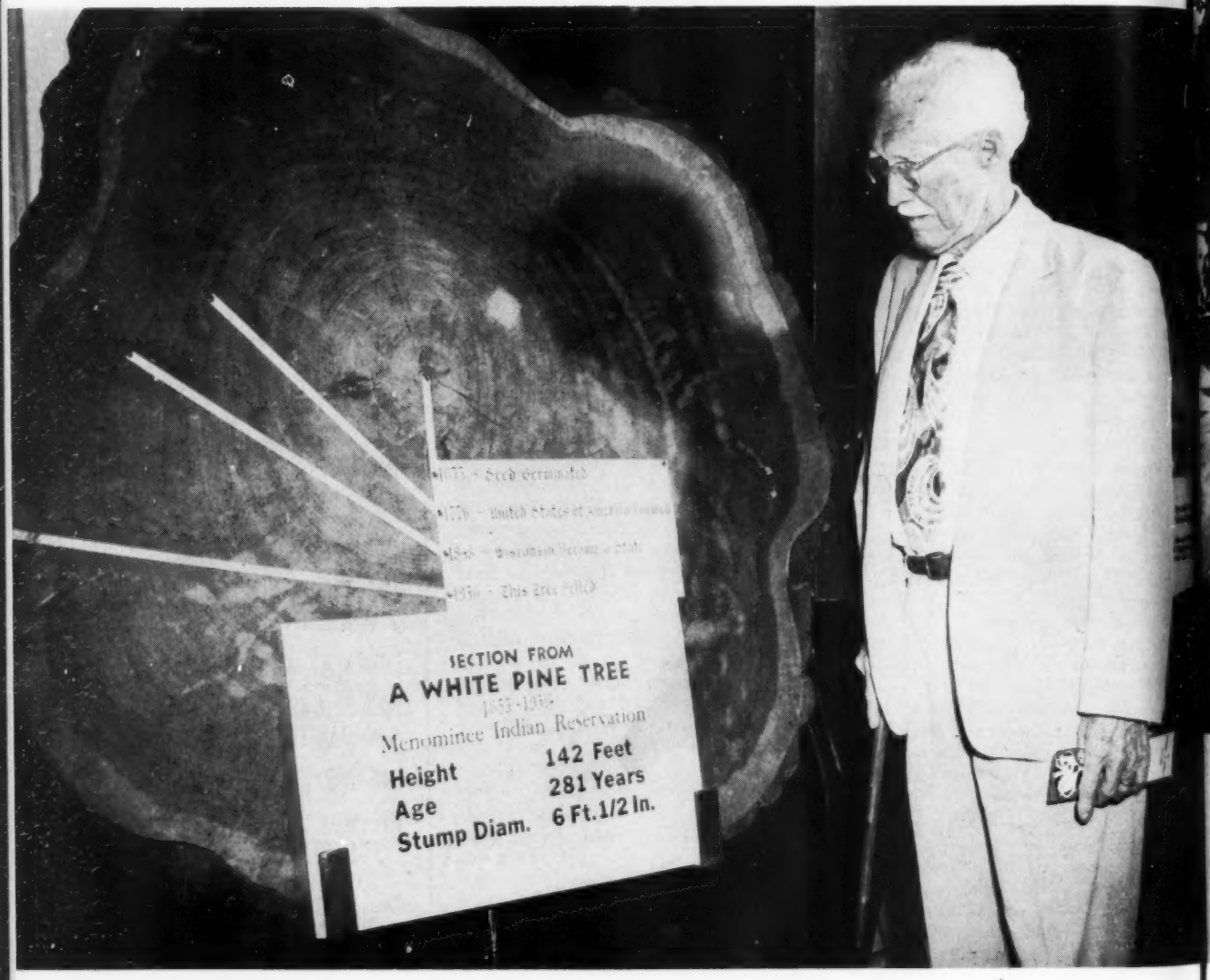

Royal S. Kellogg, of Palmetto, Florida, has been a member of The American Forestry Association for 57 years. During that time he has had a major hand in helping to shape American forest policy and today he is regarded as one of conservation's elder statesmen. "Forestry must be a good thing for the country when so many fine people continue to support organizations like The American Forestry Association," he told *American Forests*. Here he is shown examining a section from a 281-year-old Wisconsin white pine that was born in 1655 and cut in 1956 on the Menominee Indian Reservation. Examining the rings, he commented, "This reminds you that forestry is still pretty young in our country, doesn't it?"

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With 6 full horsepower packed into only 19 pounds, the Homelite EZ-6 has *all* the features the professional woodsman needs; features like high-compression, short-stroke design to cut wasteful friction, increase engine life, reduce gas consumption . . . new, revolutionary intake valve to increase engine power, assure smooth performance . . . positive-action fuel pump and diaphragm carburetor to give full power in any position.

Additional EZ-6 features include automatic governor . . . automatic clutch . . . moisture-proof and dust-proof ignition . . . needle bearings on connecting rod . . . ball bearings on crank shaft. *The EZ-6 is the direct drive chain saw "built to take it."*

Ask your dealer for a demonstration.

EZ 6

See all the famous Homelite line!

6-22 most versatile, all-purpose gear drive chain saw available. Has straight blades, plunge-cut bow, brush cutting and clearing attachments. 6 horsepower, 22 pounds. Gives you everything you want for dependable, year-round performance.

4-20 rugged gear drive chain saw gives you consistent, dependable performance in a wide range of cutting jobs. 4 horsepower, 20 pounds, cuts trees up to 4 feet in diameter.

7-29 most powerful one-man chain saw you can own. 7 horsepower, 29 pounds. Powerful enough to bring down any tree in a stand. Fells trees up to 10 feet in diameter.

Homelite builds and sells more chain saws than any other company in the world.

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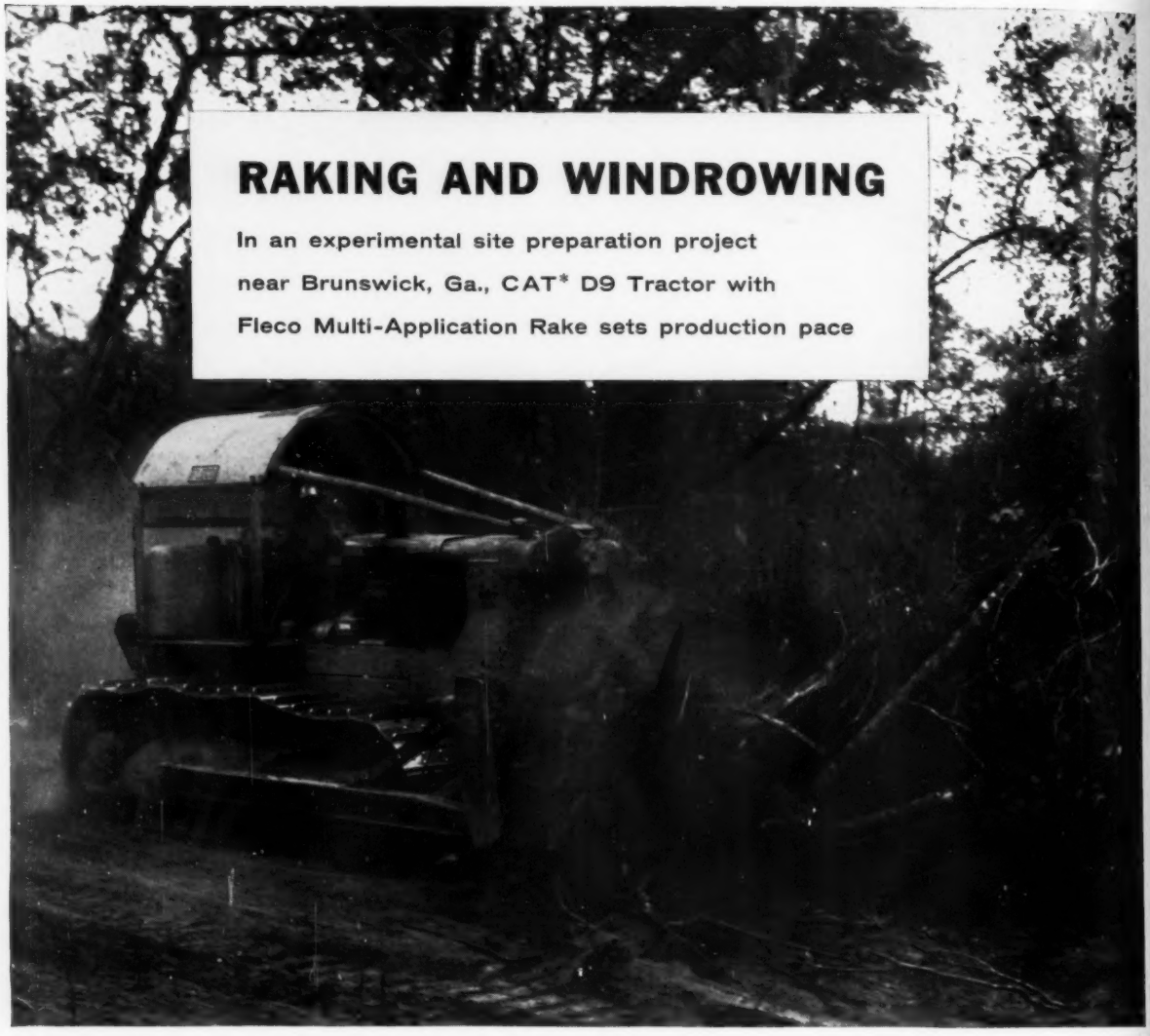

RAKING AND WINDROWING

In an experimental site preparation project near Brunswick, Ga., CAT* D9 Tractor with Fleco Multi-Application Rake sets production pace

To determine the various applications of crawler tractors and land clearing equipment for site preparation, Caterpillar Tractor Co. and the Brunswick Pulp & Paper Co. held a three months' series of field experiments near Brunswick, Ga. One series involved raking and windrowing. The stand chosen for treatment was classified as hammock lands with live oaks up to 72″ in diameter, turkey and water oaks running into heavy palmetto, gall berry, myrtle and vine areas. Merchantable timber had been harvested but no clearing completed. Equipment in this experiment included the D9 shown above, a D8 with Fleco Rock Rake and a D7 and a No. 977 Traxcavator with Fleco Rakes.

Each machine was assigned to a plot. The giant 320 flywheel HP D9 cleared the densest areas, while the D8, D7 and No. 977 handled the less dense and light plots. In these plots, the machines were able to push the accumulated cover 165′ directly to the windrow. Very dense conditions, however, required that the tractor push the vegetation down parallel to the windrow. Operator judgment determined the method used. This technique utilized the rake as the felling, raking and windrowing one-purpose tool.

See your Caterpillar Dealer for complete information on this operation as well as other phases of the experimental studies such as: stump clearing and cutting, chaining, stump treatment and harrowing.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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HEAVY-DUTY WOODS EQUIPMENT FOR THE HARD WORK